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ORIGINAL ARTICLES.

THE MODERN TREATMENT OF FRACTURES OF THE LOWER END OF THE RADIUS, AS INDICATED BY THE ROENTGEN RAYS.*

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THE old dictum, *"Qui bene diagnoscit, bene medebitur,"* applies preeminently to the treatment of the fracture of the carpal end of the radius, generally known as Colles's fracture. In fact the laws that govern the treatment of this much disputed fracture, and last but not least the final result, are entirely determined by a correct diagnosis. The principles of treatment are then reduced to a few points of simple common sense.

Such complete and correct diagnosis could not as a rule be made before Roentgen's great discovery. It can safely be maintained that in most cases skiagraphy has revealed conditions that were not expected and required the original diagnosis to be more or less modified.

The questions most frequently asked of a surgeon, "How do you treat Colles's fracture?" "Do you use long or short splints?" "Do you prefer the plaster-of-Paris dressing or a splint?" "Are you fond of Dumreicher's, Roser's, Schede's, Braatz's, Gordon's, Koelliker's, Moore's, Carr's, Bond's, or Middledorpf's bilateral, or of the old pistol splint of Nélaton?" "Are you in favor of immobilization or of early motion?" etc., show that the essential points are generally overlooked, fracture of the lower end of the radius being regarded by many as of a constant type, uniformly characterized by the fracture of the bone 10-30 mm. above the articulation, and followed by a silver-fork-shaped deformity of the wrist. This point of view is inadequate and erroneous.

It has been found that the anatomical aspects of the various forms of fracture of the lower end of the radius differ in fact more than those of any other fracture, and it is self-evident that such variants must greatly influence the manner of treatment.

In the first place, the question whether the fracture line is intra- or extra-articular is of great importance, because for a simple extra-articular fracture and a Y-shaped intra-articular fracture different therapeutic means must be sought. Again, the varying relations of the fracture of the radius to its fellow, the ulna, are of great practical importance.

It is but natural that our therapy should be changed and directed by fuller clinical experience and anatomical observation. In the short space of time which has elapsed since Roentgen's discovery it has been found that the anatomical aspect of the fracture of the carpal end of the radius (inaccurately called Colles's fracture) shows a number of types. It is true that the majority of cases are characterized by a breach of continuity from 10-30 mm. above the articular surface of the carpal epiphysis, which, on account of a peculiar turn of the lower fragment causes that deformity of the wrist which is compared with a fork (*displacement à la fourchette*) or with a bayonet, or with a flat Z. But besides this type, first described by Colles, there still remains a large group differing from it materially. Without undervaluing the great work of our surgical masters before the Roentgen era, and particularly commending the work of Nélaton, Velpeau, Volkmann and Koenig, we must still say that the rays furnish the most convincing proof of the necessity of modifying their interpretations of this injury. Thus, having regard to old experience as well as to information recently gained, I have tried to classify those different forms of this much disputed fracture which appear to be most characteristic and must accordingly demand different therapeutic measures; and if we bear in mind the frequency of fractures of this type and believe that they represent 25 per cent. of all fractures, the importance of a detailed diagnosis will be evident.

In classifying the different varieties of fracture of the lower end of the radius, it seems to me to be essential to distinguish: (1) Epiphyseal (chondro-epiphyseal and osteo-epiphyseal) separation; (2) fissure; (3) complete fracture (simple, without displacement); (4) complete fracture, (simple or multiple, with displacement); (5) fracture of the carpal end of the radius associated with fracture of the styloid process of the ulna; (6) fracture of the carpal end of the radius associated with fissure, fracture or dislocation of the lower end of the ulna; (7) fracture of the carpal end of the radius associated with fissure or fracture of the scaphoid bone (sometimes also with the ulnar end). All these varieties may be intra- as well as extra-articular. (8) Fracture of little bone portions (chips), generally extra-articular. (See Annals of Surgery, August, 1901).

Simple subcutaneous fractures, showing little or no displacement, often heal without, or in spite of, any treatment, as the long sin-register of quackery will demonstrate. The number of fractures not recognized as such during treatment is legion.

The first object of a rational therapy of all fractures is the consolidation of the fractured

* Read at the stated meeting of the New York Academy of Medicine, April 3, 1902.

ends without any displacement and without injuring the adjacent tissues or the function of the limb. It is evident that if there is no *displacement* no *replacement* (or, better said, reposition) will be necessary. All that is then required is to protect the injured limb in its normal position. This is done by proper immobilization.

In the great majority of cases, however, more or less displacement follows the fracture. In such an event, of course, the displaced fragments must be reduced to their normal position. After *exact reposition* has been attained, *proper fixation* in the normal position is in order. These doctrines are so simple that it seems almost unnecessary to repeat them. Yet they are frequently violated. The functional impairment following non-reduced fractures of the lower end of the radius, especially the formation of adhesions, has led a number of surgeons to enunciate the dogma that the treatment of the soft tissues is the most important part in the treatment of fracture. They claim, in other words, that because the function of the soft tissues, for instance, of the tendons, is impaired after an unreduced fracture, the soft tissues should have received more attention, instead of the displaced fragment having simply been reduced to where it belongs. Nothing, in fact, is more contrary to common sense than this dangerous maxim, which is based upon correct observation but incorrect interpretation. It should always be considered that the relations of the soft tissues to the bones are like that of the clinging vine to the sturdy oak.

Galen says that the bones give the human body form, erectness, and firmness. It is evident that an injury of the bones impairs these three fundamental factors. The most important step toward repair must thus be taken in the foundations rather than in the superimposed structures.

If there is displacement of the bone fragment undue pressure must necessarily be made upon the soft tissues; *non-reduction means persistence of pressure,* the fatal consequences of which are well known. *Reduction means the relief of pressure.* If the lower fragment is displaced upwards (compare Figs. 12 and 14) the extensors are unduly stretched as they are upheld like the strings of a violin by the bridge. Of course, the act of injury to the soft tissues cannot be undone by the mere cessation of pressure, that is, by reduction; but the influence of the injury on the soft tissues—the influence of the pressure, in fact—lasts only a short time and is insignificant after early reduction, and therefore repair is easy. This means that the main premise of adhesion—formation—is wanting. And clinical observation shows that with perfect reposition the joints as well as the sheaths of the tendons are found free, provided the immobilization has not lasted for an extraordinary length of time.

A fracture is a solution in the continuity of the bone, just as a wound is a solution in the continuity of tissues in general. The aim of modern wound treatment is union by first intention. The most important requirement for this end is, besides aseptic precautions, the thorough adaption of the wound surfaces.

No surgeon would expect agglutination if there be displacement, diastasis or overlapping of the wound margins. The same principle applies to the treatment of the margins of the bone fragments. It is true that manual coaptation is a little more difficult than suturing; still, under the guidance of the Roentgen rays it can almost always be accomplished. Before their advent it was usually the final result alone which told of the success or failure of treatment. That result was then a *fait accompli,* and the time for proper correction had passed.

Now, with our Roentgen light mentor we can tell from the very beginning what the result will be. If the "Roentgen mirror" reflects perfect coaptation of the fragments underneath the dressing, the final result must be good. There will be hardly any reaction; no exudation will form around the agglutinating surfaces, and consequently there will be no adhesions. Even in those cases, in which considerable displacement, or comminution, or both, have injured the soft tissues, little reaction follows within them, if reduction be thorough. And if reduction is impossible, the Roentgen rays point to those fragments which are to be removed shortly after the injury. This is preferable to waiting for months, exhausting all mechanical means, and finally arriving at the conclusion that the deforming fragments had better be removed. What I and many others have in former years often regarded as a callus was nothing but a projecting piece of bone-fragment in a displaced position. It may, perhaps, be a pardonable policy to adhere to this most euphonic term in the presence of the inquisitive and criticizing patient, who has a dangerous desire of learning the cause of his gibbous wrist. But a scientific forum cannot ignore the occasional failure to reduce.

The regular scar of a well-united wound must be the model of our therapeutic efforts. Direct union is to be striven for. What is termed ensheathing callus-formation means union by second intention; and this is certainly undesirable as long as union *per priman* can be well accomplished. Ensheathing callus is the compensating effort of nature to overcome the unreduced deformity and to bridge over the hiatus made by irregular adaptation.

In order to accomplish exact reposition, the degree and the direction of the displacement, as it is shown by the Roentgen rays, must be first considered. It is true that an experienced surgeon will often *guess* right, but he will never *know,* except by his infallible adjunct, the Roentgen rays. The only safe method is the self-control by the Roentgen rays. It may appear to be unjust to demand of the struggling practitioner that he should supply himself with an expensive Roentgen apparatus, but after all there will be no other choice. The public is cruel, and the pa-

tient's interest concentrates itself almost entirely in his own welfare. These principles apply to most other fractures situated near a joint. Contusion and distortion are sometimes taken for fissure and often for non-displaced fracture, and vice versa, as the symptoms—local pain and enlargement of the wrist—are common to all. Crepitus and false motion are absent, and this is not surprising.

As said above, if there is no displacement, no effort of reposition should be made. How absurd then to subject the patient, as is often done, to painful procedures. In simple fissure union may be perfect under any, or even in spite of any, form of treatment. If the surgeon, led by anatomical knowledge, does practically the same as the quack does on account of his ignorance, namely, leave the healing process to nature, the same good result may finally be obtained. The scientific treatment of fissure or non-displaced fracture in which portions of the periosteum still maintain slight cohesion of the fragments (especially at the dorsal surface) will not alter any of its mechanism, but it will at least have the value of a greater or less comfort for the patient, and in cases of this kind we must be warned against scientific nihilism. Such comfort is obtained by encircling the wrist by a bracelet of moss-board. This appliance sufficiently immobilizes the wrist and at the same time permits enough motion to counteract the formation of adhesions in the sheaths of the tendons. The patient carries his hand in a sling in such a manner that the ulnar margin rests on it. Thus free motion of the hand is permitted. The patient is told to move his fingers as in playing the piano; and I find it very useful to advise him to grasp marbles of moderate size and to roll them around in the palm of the hand. Patients are generally willing to keep these marbles in their pockets and play with them while reading or conversing or walking around. If motion is thus constantly kept up massage treatment as well as forcible motion can be dispensed with, and recovery is perfect in four weeks, or sometimes even in three.

Most of these fractures being extra-articular, articular effusion is generally absent. If the fracture line extend into the joint, displacement usually follows. The oblique fracture of the lower end of the radius has, as far as my knowledge goes, not yet been described. I have observed it in adults only. It looks as if the fracture line were longitudinal at the articular surfaces, the upper fragment appearing as a triangular piece of bone. The apex of this piece begins about an inch from the wrist, and the base carries part of the joint surfaces, so that the lower as well as the upper fragment shows articular surfaces. If there is no displacement, the treatment is the same as in diaphyseal separation, or complete fracture without tendency to displacement. In the triangular type, however, in view of the intra-articular inversion it is preferable to apply a plaster-of-Paris dressing immediately after the injury is sustained.

But whenever displacement of the fragment takes place, accurate reposition is the condition *sine quâ non*.

Then the modus operandi of reduction depends upon the type of displacement. In the majority of cases the lower fragment is directed upwards, so that there is dorsal prominence, the joint not being concerned. In such cases (generally called typical Colles' fracture) the shape of the deformed wrist resembles that of a bayonet or a fork. The Roentgen rays have shown, however, that the upward displacement as a rule is associated with sideward displacement, generally in an outward direction, causing radial inversion and consequently slight shortening of the radial axis. In such cases the clinical diagnosis is not difficult. The lower fragment pushes towards the dorsum, at which a prominence is seen, near the wrist, corresponding to a groove at the site of the upper end of the fragment. The upper (diaphyseal) fragment presses against the flexors, producing a prominence further upward. The greater the prominence, the shorter is the radial axis. Crepitus is, even in these typical cases, often absent. In a number of cases, however, the direction of the displacement is found to be towards the ulna, even if the diaphysis is not pronated.

There are also a number of cases observed by myself as well as by others, where the lower fragment is turned backward around the transverse axis. Sometimes the sagittal axis of the lower fragment is turned around. The oblique type (triangular fragment), in which the joint surface is split, has been spoken of to above. A rarer form is the detachment of the posterior border of the joint surface. Roberts also observed forward displacement of the fragments. Most of these forms can only be diagnosticated by the Roentgen rays.

By being upwardly dislodged, the lower fragment, in the typical cases, is brought into slight supination, while the diaphysis is in decided pronation. The epiphysis being in very close connection with the ulna, the latter is slightly pushed toward the ulna if the ligamentous connection between the radial fragment and the ulna remains intact. This phenomenon finds its conspicuous clinical expression in the lateral prominence of the lower end of the ulna.

Wherever displacement demands reposition the assistance of one or two persons is desirable who should make counter-extension while the surgeon replaces the displaced fragment. After the exact situation of the fragments is ascertained by the fluoroscope the surgeon knows at once how to replace it in its former and normal position. This is done by making manipulations, either in the way of pressing sideward and turning the fragment, or by putting the wrist at a proper angle and thus correcting the abnormal direction. It is needless to say that upward displacement requires pressure from above downward; outward displacement, pressure from within, and inward displacement pressure from without.

The oblique triangular type generally requires downward and inward pressure. In Fig. 10, however, which shows this triangular type associated with spiral fractures of the ulna, the triangular fragment is turned upward and inward, so that downward and outward pressure is required for reduction.

The following method I found most useful in the majority of these cases: The hand of the patient is grasped as in a firm handshake by the left hand of the surgeon, while the patient's thumb is held by the right hand of the surgeon so that the thumb of the latter

Fig. 1. Reduction in semipronation, while the surgeon's right thumb is pulling and his index-finger is pressing downward.

presses the fragment downward, while the surgeon's index finger presses it inward at the same time. If the direction of the displacement is towards the ulna the surgeon grasps the patient's hand, including the thumb, with his own right hand, and pushes the fragment outward with his left thumb while he supports the flexor aspect with the rest of his hand. During these manipulations counter-extension must be exerted at the lower end of the arm. (Fig. 1.) If it appears to be impossible to reduce the fragment in this manner, anesthesia must be employed. This maneuver is sometimes facilitated by placing a book or a piece of wood underneath the ulna at the edge of a table.

I have never failed to reduce the fragments in fractures of this type since the Roentgen rays became such a reliable guide. Even in impacted fractures I could always disentangle the interlocked fragments.

If there is a simultaneous injury of the lower end of the ulna showing displacement, special care must be taken to press the fragment into its normal place.

In multiple fractures, even in the much dreaded Y-shaped variety, the articular arch of the radius may sometimes be restored by repeated efforts of reposition, controlled and corrected by the Roentgen rays.

After reposition is accomplished a fixed dressing must be employed for the purpose of retaining the fragments in their proper positions. This is not always easy. I find that no dressing accomplishes the purpose of retaining the fragments better than plaster of Paris, since it adapts itself to the contours of the wrist in any desired shape or direction, and can be adapted to the individuality of each case.

Before the Roentgen era the fear of ischemia and gangrene prevented me from using it immediately after the injury. Now that the premises of ischemia are known to be wanting as soon as the pressure of displaced fragments is removed, such fear is uncalled for. So, while in former years I applied splints first and resorted to the plaster-of-Paris dressing four to seven days afterwards, I now apply the plaster dressing immediately after reduction, resorting to the splint treatment a week or two later, as the case may require. If the protruding fragment is not reduced, gangrene of the overlying soft tissues may be produced by any kind of dressing. A short time ago I presented two illustrations showing extensive gangrene at the dorsum as well as on the palm, which was caused by well-padded splints. No effort at reduction had been made. Such results are of grave consequence for the patient as well as for the surgeon.

If the direction of the displacement is slightly upwards, or upward and outward, a plaster-of-Paris dressing embracing the thumb, is applied (Fig. 2). I find that the direction of the thumb influences that of the fragment to a great extent. The hand is moderately flexed at the same time. If gentle pressure with the index finger (Fig. 1) does not suffice to keep the fragment down, it must be pressed down by a signet, around which the bandages are wound. After the splint is fastened with a bandage, the fluoroscope shows whether the fragment is in a desirable position. A dorsopalmar as well as a lateral examination must be made, because an anteroposterior view

Fig. 2. Circular plaster-of-Paris dressing in superabduction.

only shows whether there is any upward displacement left.

If the fluoroscope shows imperfect adaption, the bandage must be removed and reposition done over again. Under such circumstances the fragment may be better retained if the thumb is pulled in an outward direction while the hand is shifted to the opposite side. A plaster-of-Paris dressing, applied in this position, resembles the old pistol splint of Nélaton. Of course the outward bending can be increased *ad libitum*. A surgeon must not lose patience if his efforts fail several times. By the fluoroscopic guidance he will at last surely find the proper angle, or in other words the most suitable position and shape of the dressing or splint for his individual case. One mistake often suggests the best mode of correction. (Figs. 7 and 8.)

If the displaced fragment is directed towards the ulna, in which case there is generally an outward bending of the ulna present, immobilization is kept up best by turning the hand inwards —Fig. 3. After a week the dressing must be removed and if the edema has disappeared, a

Fig. 3. Circular plaster-of-Paris dressing in adduction.

plaster-of-Paris splint, moulded after the same principles, may be substituted, which can be taken off temporarily, so that massage treatment may be employed if necessary. The essential part of these splints is the encircling of the thumb, which guarantees absolute immobilization. (Figs. 4 and 5.)

In the multiple T- or Y-shaped variety there are generally two diverging fragments, one being shifted towards the ulna and the other outwardly. By pressing these fragments asunder, so to say, the diaphysis is made to push itself forward so

Fig. 4. Thumb-splint, hand slightly flexed, for fracture without displacement.

that it touches the scaphoid bone, the arm consequently being shortened. Here the circular plaster-of-Paris dressing in abduction is indicated. After that fragment, which is outwardly displaced, is pressed inward, a pad of adhesive plaster is placed above it. The fragment which is displaced toward the ulna, must be shifted in the direction of the radius. To prevent slipping back a rubber drainage tube is placed between it and the ulna at the dorsal aspect. By gentle pressure it is squeezed down into the interosseous space and kept *in situ* by strips of narrow adhesive plaster, which do not entirely surround the arm.

Since this type is intra-articular, it is understood that there is always a well-marked extravasation which may even extend over the sheaths of the tendons, so that palpation is rendered difficult. There massage is best employed to remove the extravasation. Naturally, its presence ren-

Fig. 5. Thumb-splint, hand slightly abducted, for fracture with displacement.

ders a detailed diagnosis impossible except by the rays.

Among all the different varieties of fracture of the lower end of the radius these intra-articular injuries are most serious. Only continuous control, by the aid of the Roentgen rays, of the proper position of the fragments, together with repeated correction, will give a fair result.

In the case of considerable comminution, a perfect *restitutio in integrum* can not be promised.

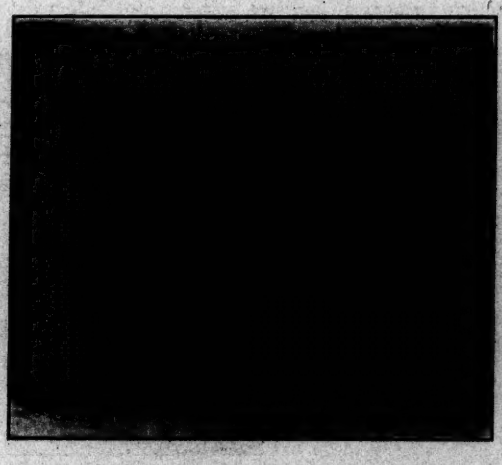

Fig. 6. Axial turning of lower fragment.

A skiagraph taken at the earliest possible moment is then a valuable document for the surgeon, since it proves the great difficulty of perfect reposition of the splinters.

In the case of a woman of twenty-five years the lower fragment was turned towards the ulna and also around its axis (Fig. 6). It goes without saying that this extraordinary degree of displacement showed considerable deformity. Re-

position was accomplished without anesthesia, the wrist being immobilized in superabduction. The skiagraph (Fig. 7) taken through the plaster-of-Paris dressing, showed that the abduction was overdone, therefore another dressing was applied in moderate abduction. This position showed the fragments in better coaptation, but there was a tendency of the ulnar side of the fragment to project upwards, partially filling up the interosseous space. Elastic pressure, recommended by me in the treatment of metacarpal as well as metatarsal fracture, also, proved to be useful in this case. A small piece of rubber drainage-tube (the diameter of a large pencil) was placed alongside the interosseous space and fastened there with a small strip of adhesive plaster. Now the skiagraph (Fig. 8) showed perfect adaptation. That it had spoken truthfully was evident from the absence of any reaction—which should have been expected in view of the enormous degree of displacement and by the speedy and blameless recovery.

I confess freely that I have often thought I had reduced a displaced fragment thoroughly because palpation seemed to give thorough satisfaction. But I was sometimes not little surprised that the Roentgen plate showed me most impolitely how ill I had succeeded in my alleged reposition. In a former publication on the subject I have advised as a method of self-education the drawing of an anatomical sketch of one's silent diagnosis and then comparing it with the skiagraph. Thus we learn on one hand that we cannot always depend even on a highly cultivated palpatory talent, and on the other hand we are taught to improve the power of judgment by comparing our sketch with the lifelike picture as it is given to us by the Roentgen rays. Thus we

Fig. 7. Reposition of axial displacement overdone as shown by skiagraph taken through plaster-of-Paris dressing.

Fig. 8. Case, illustrated by Figs. 6 and 7, correctly reduced as shown by skiagraph taken through plaster-of-Paris dressing.

perfect our clinical experience, for which the Roentgen rays should by no means simply be substituted.

There is no doubt that good results can be obtained by other means of immobilization, provided they are preceded by proper reposition controlled by the Roentgen light.

The main principles of treatment are the same for the other types of fracture of the lower end

Fig. 9. Chondro-epiphyseal separation, showing upward displacement.

of the radius. There are, however, several modifications according to their different anatomy.

If in chrondro-epiphyseal separation no sideward displacement exists, the antero-posterior exposure shows nothing abnormal while a side-view may disclose considerable upward displacement as is shown by Fig. 9, for instance, the anterior view of which revealed apparently normal relations. This is best treated by gentle downward pressure without using counter-extension and the application of a plaster-of-Paris dressing in extension. If a lateral view shows any sideward displacement under the dressing, a pad of adhesive plaster is attached to the skin above the lower fragment and the dressing reapplied.

In osteo-epiphyseal separation, where the fracture line is not limited to the epiphyseal cartilage, but extends to the diaphysis, a greater tendency to displacement is observed. The principles of treatment are the same as that of the complete fracture described above, since the tendencies to the various forms of displacement are the same.

Fracture of the lower end of the radius associated with fracture of the styloid process of the ulna is rather frequent. My own statistics show that the styloid process is involved in 26 per cent. of the cases. This co-injury was discovered long before Roentgen by Nélaton and Velpeau and studied especially in this country by Pilcher, Roberts, Freeman, Corson, Thomas, Don, Haughton and Colton. I recommend the circular plaster-of-Paris dressing in moderate adduction for this type. Sometimes it is possible to grasp the process and push it back into its proper place. This is easy, provided the process is displaced outward, but in case of inward displacement reposition is much more difficult. I have found it useful to press this fragment outward by pushing the dull end of a pencil between the process and the radius and keeping it there until the dressing is completed, the bandages being wound around the pencil. A small piece of rubber tube may also be placed there.

A small amount of pressure often suffices to push the fragment into position, while after the lapse of weeks the inversion of the process may cause intense pain on any effort of bending the wrist, so that removal by chisel may have to be considered.

In fractures of the lower end of the radius associated with dislocation of the ulna, the lower radial fragment generally rides on the diaphysis, the latter protruding at the flexor aspect and the former at the dorsum. The ulna end then overlaps the carpus. It must be a considerable degree of violence which produces this rare injury. In such cases the arm is shortened at least an inch. (Fig. 18.) Reduction is easier than retention after reduction. Sometimes an extension-splint will answer, but in the majority of cases joining of the radial fragments is better done at once, and the patient should be thoroughly informed of the grave nature of the injury.

Fracture of the lower end of the radius associated with fissure of the neck of the ulna is treated after the same principles as the complete fracture of the lower end of the radius. This applies also to fracture without displacement. But if there be displacement—generally outward bending of the lower fragment, sometimes in

Fig. 10. Oblique intra-articular fracture of radius combined with spiral-shaped fracture of the lower ulnar end.

spiral shape, as in Fig. 10—after reposition a plaster-of-Paris splint in moderate adduction is applied. A pad of adhesive plaster is also placed at the outer aspect of the ulna. Should there be any inversion, a small rubber-drain must be placed in the interosseous space.

Another co-injury, the transverse fracture of the scaphoid bone, deserves thorough attention.

Fortunately as a rule but little or no displacement is present, but the character of the injury being intra-articular it is appreciated that there is considerable intra-articular effusion, which is largely responsible for the great tendency to adhesion-formation in these cases. The treatment is practically the same as that for the complete fracture described above, with the difference that motion must begin early. It is therefore advisable to remove the circular dressing somewhat earlier than in the other types and to substitute a plaster-of-Paris splint—the same shape. This splint may be taken off temporarily every day so that gentle massage can be commenced.

Fracture of little bone portions (chips), generally of the extra-articular type, are often confounded with contusion or distortion. In such cases massage treatment is manifestly inappropriate; the treatment should be carried on after the principles of the treatment of fractures, viz.,

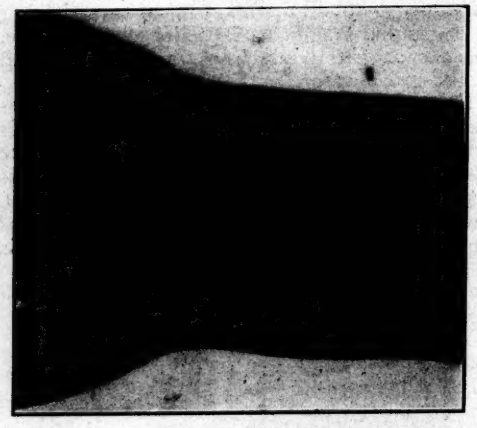

Fig. 11. Fracture of lower end of radius, showing no displacement in dorso-palmar exposure. (Compare Fig. 12.)

immobilization. This should be kept up for the first week after the injury at least and after the little fragments are redressed.

Such chips are sometimes no longer than the head of a pin, and if they are separated from the dorsal or palmar surface of the radius may not be at all conspicuous on the skiagraphic plate, while a lateral exposure will show them.

If the massage treatment so commendable in contusion is used in these cases, it is not surprising that the patient becomes rebellious. It is indeed not at all indifferent whether a simple bloody effusion or keen-edged bone-fragments are kneaded. If the principles of immediate reduction are adhered to, the "gibbous wrist" will cease to be counted among the inevitable inventory of surgical clinics. Still, I am afraid, this is still a pious wish as long as there are surgeons who imagine that by virtue of their own especially developed palpatory talent they can judge the details of any fracture with the aid of the Roentgen rays. Some are willing to use them in *obscure* cases, but they do not realize that the cases which they regard as simple, would appear in a different light when skiagraphed. The paradox

Fig. 12. Case illustrated by Fig. 11, showing considerable upward displacement in lateral exposure.

may be justified here, that, if they would see the fracture type in its proper light, it would appear obscure to them. Up to that time the question of correcting the deformities will still have to be considered.

Two to three weeks after the injury correction is possible by simple refracture, as is evident by Figs. 11, 12 and 13. Fig. 13 shows the result of the first correction through the plaster-of-Paris dressing. After the lapse of four to five weeks the only remedy consists in osteotomy in the fracture line. Fig. 14 shows malunion eight weeks after the injury. Perfect restitution is only possible by osteotomy in this case. There may be little discomfort but bending of the wrist is lim-

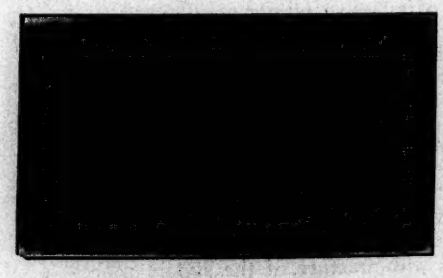

Fig. 13. Displacement, as shown by Fig. 12, corrected. Irradiated through plaster-of-Paris dressing.

ited. Sometimes a small wedge must then be exsected from the ulna in order to permit perfect reposition. Such operations must be performed under the strictest aseptic precautions; tearing of the wound edges must be avoided and the wound itself should come in contact with the hands of the surgeon as little as possible since the work can be done with the instruments. The immediate result of the operation is studied by the Roentgen rays and the position modified if neces-

sary. Fig. 15 shows the wrist of a lady of fifty years, one week after the upward and sideward

Fig. 14. Upward displacement causing considerable functional disturbance eight weeks after the injury (lateral view).

displacement was corrected by linear osteotomy. Nine weeks had elapsed since the injury. The

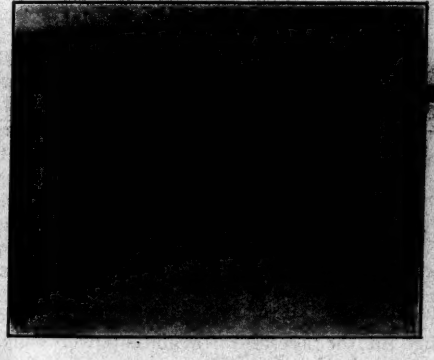

Fig. 15. Result of osteotomy for upward and lateral displacement one week after operation.

result was perfect. In multiple fractures (Fig. 16) those shortened fragments which are an ob-

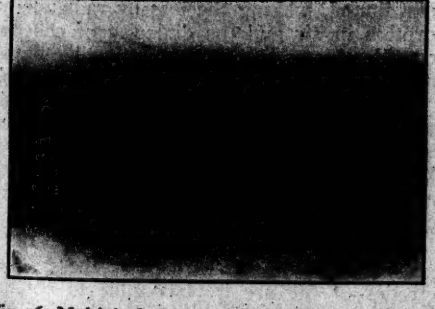

Fig. 16. Multiple fracture of lower end of radius, followed by overlapping of lower fragments and causing side and forward displacement of ulna.

stacle to motion are best removed. The Roentgen rays often indicate at the time of the injury whether there may be a chance for restoration or not. In the latter event it is preferable to operate as soon as the bloody effusion is absorbed, since nothing can be gained by procrastination under such circumstances. Similar principles apply to the treatment of isolated bone-chips. In a case of osteo-epiphyseal separation, caused by great violence, the simultaneous dislocation of the pisi-

Fig. 17. Osteo-epiphyseal separation of radius associated with dislocation of the pisiform.

form bone was detected. Reposition being insufficient, the removal was advised. (Fig. 17.)

In fracture of the lower end of the radius, associated with dislocation of the ulna, if the radial fragments have become united while overlapping each other osteotomy must also be resorted to when more than three weeks have elapsed since the injury. After the fragments are separated, muscular contraction may prevent their reposition, so that the diaphyseal fragment must be

Fig. 18. Oblique fracture of lower end of radius associated with dislocation of ulna.

shortened in proportion. The protruding ulnar portion must be restored. Fig. 19 shows a case of this kind. Aged persons suffering from deformities of this kind may be exempted. If they suffer while motion is made, immobilization is best kept up with a moss bracelet until ankylosis of the wrist takes place. Fig. 18 for instance illustrates the case of a woman of sixty-five years of age whose skiagraph, taken three months after the injury, revealed inward and upward displacement of the radial fragment, associated with spiral oblique fracture of the lower

end of the ulna. The upper ends of the ulnar fragments projected into the interosseous space and made motion extremely painful. As long as skiagraphy had not been resorted to, the diagnosis was adhesions in the sheaths of the tendons

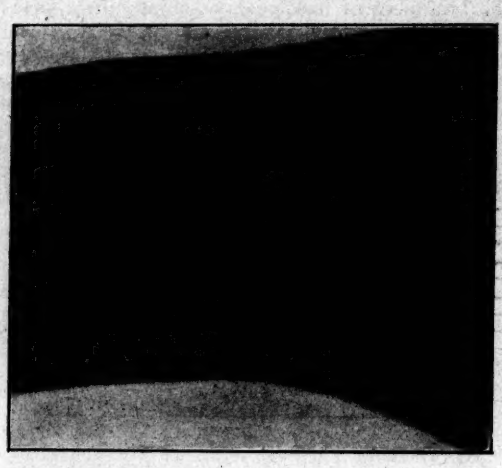

Fig. 19. Upward and inward displacement of radial fragment, associated with oblique fracture of lower end of ulna.

and so the joint was forcibly bent. As I am informed intense reaction followed each of these manipulations. In such a case only two possibilities should be considered, viz., either osteotomy or immobilization, the latter being preferable for a person of this age. If perfect restitution should be demanded, it would be obtained only by chiselling off the protruding edges.

PHOTOTHERAPEUTIC APPARATUS.

BY MILTON FRANKLIN, M.D.,
OF NEW YORK.

WHILE all wave-lengths of the spectrum which produce light, and even the infra-red rays, induce chemical change under favorable conditions, it is well known that the blue, violet and ultraviolet are the most powerful in the order mentioned, ascending.* A phototherapeutic machine must therefore produce the maximum quantity of these rays. The other rays, while they have some chemical activity, produce so much heat that their utilization in concentrated form would result in serious burning, hence they must be carefully excluded. The energy produced by the machine should be carefully collected, over as great an angle as possible, by suitable collecting lenses, and after being freed from the injurious heat-rays should be as carefully focussed upon the desired area of the patient with a condenser. These conditions being all met, it is immaterial in which order they are effected; for instance, the collection and condensation of the rays may occur at once, or successively, and the heat absorption subsequently. A phototherapeutic apparatus should therefore consist essentially of three parts: an energy-producing arrangement, a collecting and condensing system and a cooling or heat-absorbing device.

The sun has long since been discarded as a direct source of energy in phototherapy. The reasons for this are numerous and weighty, but we shall mention only the following as a few of the most important: (1) The sun cannot be relied upon for continuous service, except in a very few places on this earth. (2) The solar spectrum is so full of absorption bands that some of its rays are very small in quantity. (3) The atmosphere of this earth is a tremendous absorber of the ultraviolet rays. (4) The apparatus necessary to utilize the sun's rays is very cumbersome, and except in the open air is often quite useless. (5) The energy of the electric arc at a short distance is proportionally greater than that of the sun.

The Light Source.—The Voltaic arc is to-day preëminently the greatest light-producing apparatus at our command. A consideration of its intensity and a glance at its spectrum will at once demonstrate that where tremendous energy and intense chemical activity are required it is so far ahead of other lights as to render them practically useless in comparison. The ordinary arc lamp produces a remarkably even spectrum, with a good strong ultraviolet region, and the energy produced is proportional to the square of the current employed. Lamps of the incandescent enclosed pattern are absolutely useless, as having a comparatively cold filament; its spectrum ceases at a low region. Besides this, the energy consumed in these lamps is never more than about three ampères, and that in only very rare cases—lamps of 100 candle-power. The energy consumed in the average 16-candle-power lamp is about one-half ampère, and even if a number of these lamps were combined to utilize more current the purpose would not be served, as the spectrum from any number of lamps would not be higher, though more intense, than from one, and the greater the number of lamps the larger would be the area over which the sources of light would be distributed, making the loss by radiation and absorption in air and the difficulty of collection so considerable as to render questionable the advantages of multiplication. Besides this there is the fatal condition that the light is inclosed in a glass globe. I shall mention the subject of glass later.

A careful study of the spectra of various elements has shown that magnesium, potassium and iron have spectra in the blue, violet and ultraviolet regions, and that by combining salts of these metals with the carbon in the ordinary electrodes of the arc it is possible to obtain a spectrum comprising more of the chemical rays than under any other circumstances. Fig. 1 shows the comparative spectra of ordinary carbon and iron, and the new electrodes containing these substances. Machines with iron electrodes have been tried here and abroad, but the impos-

* Gottheil and Franklin, American Therapist, June, 1902.

sibility of maintaining the arc for a period of more than one minute or so renders this arrangement impracticable. The great heating of this lamp is another point against it. Cooled iron electrodes have been suggested, but so far it has been impossible to produce an arc with a capacity of more than three ampères, and the results have been unsatisfactory. Besides, the lamps are complicated and expensive.

The Collecting and Condensing Apparatus.—Glass of the various kinds at present known is, with one exception, fatal to the usefulness of any machine whose ultimate object is the production and transmission of chemical rays. Long ago it was discovered that the spectrum from the reflecting diffraction-grating and that from rock-crystal prisms possessed a powerfully actinic region, invisible and beyond the violet, whose existence had never been suspected in the days of glass prismatic spectra. This region is the ultraviolet, and in it are found the most powerful chemical effects. Every variety of glass manufactured until quite recently has been absolutely impervious to the greater proportion of the ultraviolet, and pervious in so small a degree to the other regions, excepting the yellow and the green, that it might be called yellow and green glass. The whitest specimens came under this classification, and the only known substance which would transmit what was called a full spectrum was rock-crystal. As rock-crystal has rarely been known to yield discs of greater diameter than three inches, and as it is impossible to obtain lenses of this size commercially, or more than occasionally, the problem of finding a suitable lens wherewith to condense the rays has been well-nigh insoluble. The finest specimens of optical glass have been tried, but when examined spectroscopically they not only showed an enormous absorption in all regions except the yellow, but also evinced phototherapeutically an unmistakable inefficiency, even with the employment of the largest arcs of as high a capacity as 100 ampères. The problem has been solved by the production of a glass flux which not only transmits the blue, violet and ultraviolet rays, but actually extinguishes so great a proportion of the yellow, orange, red and infrared as to yield a comparatively cool light.

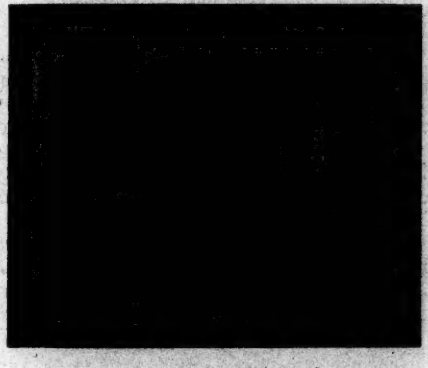

FIG. 1.

1. Spectrum from ordinary carbon electrodes.
2. Spectrum from new chemical electrodes.
3. Spectrum from iron electrodes.

The A. and H. lines drawn to show their positions.

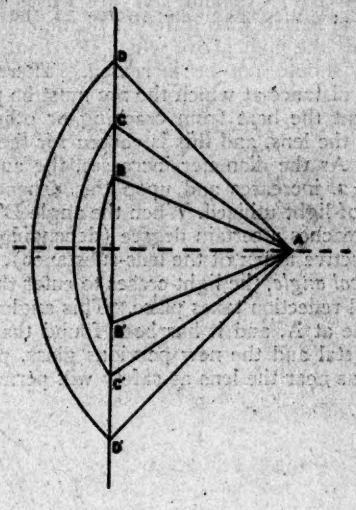

FIG. 2

The collecting lens of a phototherapeutic apparatus should have a focal length which should be amply sufficient to prevent the heat of the lamp from damaging the lens. The lamp is always placed at the principal focus of the lens, which insures the transmission of parallel rays, and for a given focal length the volume of light trans-

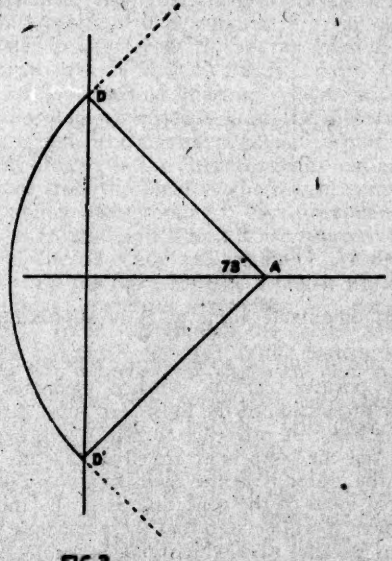

FIG. 3

mitted will depend on the diameter of the lens within certain limits. Fig. 2 makes this statement somewhat plainer. Here A is the source of light, and BB', CC' and DD' are lenses of the same focal length with different diameters. Fig. 3 explains the limit above which the diameter of the lens should not be increased. There is a minimal distance at which the arc must be placed to prevent the heat from cracking or otherwise injuring the lens, and this is chosen for the focal length. As the diameter increases, the angle at A, Fig. 2, increases and upon this depends the volume of light utilized. When the angle D' A D, Fig. 3, reaches a certain degree (depending upon the refractive index of the lens-substance), called the *critical angle*, the light ceases to enter the lens and total reflection takes place. This angle limits the angle at A, and it has been found that with rock-crystal and the new pervious glass, placing the arc as near the lens as safety will permit, the

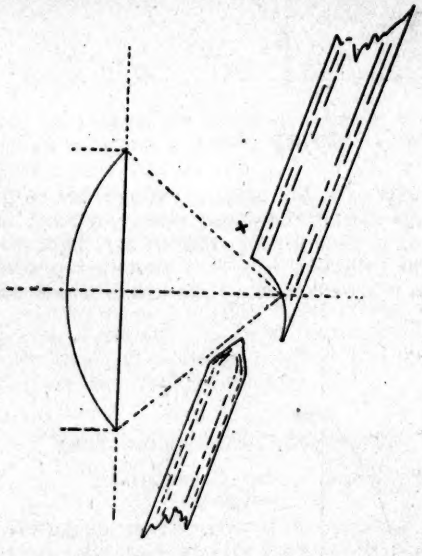

FIG. 4

greatest obtainable angle at A is approximately 73°.

The arc should be so arranged that the crater of the positive carbon, whence emanates the greater proportion of the light, will shine directly into the lens. A reference to Fig. 4 will explain this. And the lamp is arranged so that the center of the crater is in the optical axis and at the principal focus of the collecting lens. By this arrangement it will be seen that there emanate from the lens parallel rays which may be subjected to the cooling process or condensed by the condensing lens and subsequently cooled.

It will be seen from what has been said that the lenses should be made of rock-crystal or some equally diaphanous substance; that the interposition of ordinary glass into the course of the light would prove fatal to the efficiency of the apparatus; that the source of light should be at a distance from the lens which bears a ratio to the diameter, insuring as great a numerical aperture as the refractive index of the medium will permit without passing the critical angle, and that this distance should coincide with the focal length of the lens. There is reflection from the lens surface at any angle, but any increase in the diameter of the lens beyond the point of total reflection would be useless. In some forms of apparatus now on the market, the angle is increased by shortening the distance from the light to its destination, the patient, and dispensing with collecting and condensing lenses. While this has in a measure cheapened the apparatus, it leaves the machine with several disadvantages which render it very inefficient. In the first place the greatest obtainable angle by this method is approximately 40°, and this means a ratio of numerical aperture to an angle of 73° of about 35 :60, or slightly more than one-half. Secondly, the limit of energy that can be used in such a lamp is near eight ampères; and remembering that the energy produced is proportional to the square of the current strength, we see that it bears a ratio to a lamp of, say, 80 ampères, of about 64 :6400. Even were it possible to obtain the same angle as obtainable with large condensing lenses, the great difference in energy would render them comparativly weak. Furthermore, machines of this type have been found wanting in practical efficiency.

The Cooling Apparatus.—The problem of absorbing the heat-rays from the aggregate energy of the electric arc has been attacked from various points, and, though it is of the utmost importance, it has offered the least resistance to solution of any of the problems in phototherapeutic machinery. For a long time certain operators have been in the habit of using blue glass to effect this end, their idea being to absorb all of the heat-rays and to transmit the chemical rays. This statement is open to some question, as the advocates of blue glass have spoken entirely of blue light, and we do not know whether or not they realized that the violet and ultraviolet regions played the most important part. We know that the action of the blue rays is quite insignificant as compared with that of the violent and ultraviolet, and that it is the latter which are potent in exerting chemical action on organic compounds. Now, that the employment of blue glass is fundamentally erroneous may be readily seen by a glance at the accompanying illustration. Here we have a continuous spectrum from the electric arc lamp with chemical electrodes, and one from the same source, but having traversed a plate of blue glass taken from one of the machines now upon the market. It will be seen at once that not only does the blue glass absorb the greater portion of the infra-red and red, but also all of the ultraviolet, and nearly all, if not all, of the violet; and not only is this true, but an enormous proportion of the blue itself is also absorbed.

Machines in which the iron electrodes are cooled are limited to such insignificant dimensions

and capacity that they are hardly to be considered, two or three ampères being the limit. Technical difficulties have also been encountered which render these machines complicated, expensive and very troublesome to maintain in order.

The successful arrangements all consist of a cell containing water, which has been found to absorb heat-rays greatly and at the same time to transmit chemical rays in almost undiminished quantity. Small thicknesses of water, up to about 20 inches, transmit the chemical rays almost completely, and so greatly diminish the heat-rays that the light is practically cold. The greatest difficulty with this method of cooling has been to find a container whose sides will not absorb the actinic rays. The water has been placed in a tube with the lenses forming the ends, but contraction and expansion under the action of heat, which induces leaking, have rendered this method impracticable, except in small machines having lenses of four inches diameter or less. Now that glass can be obtained which will transmit chemical rays, the problem is solved by making a cell somewhat like an aquarium, and having only two opposite sides of glass or of rock-crystal, in very small sizes. Provision should be made in such an apparatus for evaporation, which greatly aids in keeping the water cool, and also, when the machine is to be used for long periods, for a continuous circulation of the water. From time to time various dyestuffs have been added to the water in the hope that they would absorb more of the heat-rays, but every substance so far tried has absorbed too much of the chemical rays to be tolerated. The safest way is to increase the quantity of water. By this means the ratio of heat-rays absorbed to those of chemical character is greater than by any other.

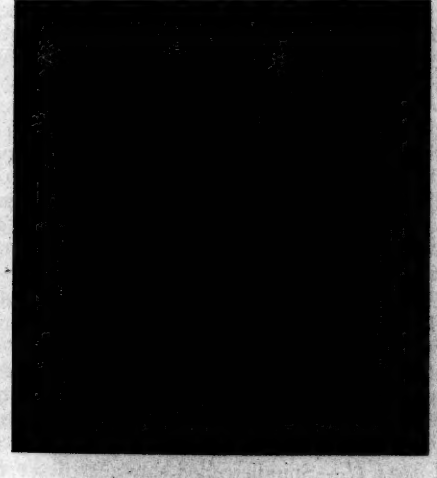

FIG. 5.
1. Spectrum of chemical carbon.
2. Absorption spectrum of blue glass.

General Considerations.—Machines of the reflecting type have been tried, but are beset with so many detracting features that they have proven well-nigh impossible. Several disadvantages may be mentioned. Where glass reflectors are used the light must pass through them twice before reaching the object. The cost of producing an optically perfect reflector is prohibitive, and ordinary spherical surfaces do not adequately focus the light. The most serious objection, however, lies in the fact that the two ends of the spectrum are focussed in identically the same plane, so that the heat-rays can never be properly isolated from the chemical rays, except by the interposition of a sufficiently great quantity of water to interfere with the transmission of the chemical rays as well as the heat-rays. In the case of a refracting machine where an uncorrected system of lenses is used, the dispersion of focus is sufficiently great to permit of putting the patient directly in the chemical focus and at some distance from the focus of the few heat-rays still outstanding after cooling. Fig. 6 explains this. Here A is light, and B and R are respectively the foci of the blue and red regions. At the blue focal point the light appears a bluish white with a circular spectrum consisting of concentric bands of color surrounding the center and having the red at the outside. If the patient be now placed at a point a little nearer the lens, the center of the light will appear dark with concentric surrounding bands as before. This dark region is the ultraviolet and is invisible.

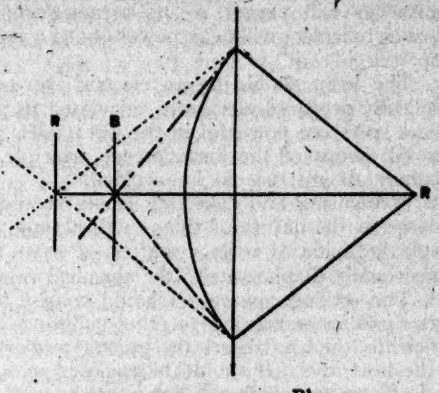

FIG. 6. ———— Blue
- - - - - - - - Red
R| Red Focus.
B| Blue Focus.

Ice has been proposed to absorb the heat-rays, and where slabs of it can be obtained they will prove of value as compresses upon the skin.

Mechanical construction is a matter of minor importance, but the machine should be simple and unlikely to get out of order. The movable parts should be finely adjusted and balanced, and so arranged that the point of light can be directed at any spot it is desired to treat. Great steadiness should be assured, and strong set screws for every motion will prove an advantage. The machine should be fire-proof.

Conclusions.—To sum up, I should say that a phototherapeutic apparatus, to be really serviceable, should fulfill the following conditions:

1. It should be supplied with light by artificial means.

2. The lamp should be as powerful as the circumstances will permit, as no arrangement of lenses or reflectors will coax power out of a feeble lamp.

3. The lamp should be an electric arc using chemically prepared electrodes calculated to produce a spectrum powerful in the ultraviolet.

4. All lamps of the incandescent principle, of whatever design, are to be avoided.

5. Condensing and collecting lenses should be as large as the nature of things will permit, and should be made of rock-crystal or of some medium equally diaphanous to the chemical rays.

6. The cooling apparatus should consist of a layer of water containing no other substance and sufficiently thick to absorb the greater proportion of the heat-rays. It should be enclosed in some kind of a vessel which will not interfere with the passage of the chemical rays.

7. The machine should be mounted in such a way as to enable the operator to adjust and turn it in any direction with the utmost degree of precision.

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THE INFLUENCE OF THE ROENTGEN RAY UPON THE DIFFERENT VARIETIES OF SARCOMA.*

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SURGEON TO THE GENERAL MEMORIAL HOSPITAL; ASSISTANT SURGEON TO THE HOSPITAL FOR THE RUPTURED AND CRIPPLED.

WHILE the Roentgen rays have been used for some time in the treatment of superficial epithelial tumors, very few data are available as to their effect upon sarcomatous tumors, only three or four cases having been thus far recorded. The following series of ten cases recently treated at the General Memorial Hospital, and in private practice, together with four other cases which had been referred to other men for the X-ray treatment, are here briefly discussed.

In this series of cases the round-celled type of tumor predominates, eleven being round-celled, two spindle-celled, and one a recurrent osteosarcoma in which, however, no microscopical examination had been made. One of the cases was a five times recurrent melanotic sarcoma of the femoral and iliac glands, of the round-celled type.

Site of Growth.—In two cases the tumor originated in the neck (lympho-sarcoma); in two in the parotid (round-celled); in one in the femur; in two in the superior maxilla; in two in the muscles of the thigh; in one in the mastoid portion of the temporal bone; in one, in the pectoral and axillary region; in one in back (fascial).

Personal Results.

Case I.—Very extensive round-celled sarcoma of the neck, encircling the entire neck from mastoid to clavicle on left side and from mastoid process on right side downwards, involving the whole pectoral region with a large mass in axilla, with marked pressure on trachea, causing distressing dyspnea. Under four months' treatment with the X-ray (no other treatment) the tumors of neck entirely disappeared, only a very small nodule remaining in axilla. The patient recovered her usual health and was discharged from the hospital July 8, 1902.

Case II.—Round-celled sarcoma of femur, involving two-thirds of shaft. Amputation advised but refused. X-ray treatment given for three and a half months, four times a week. Tumor decreased in size two inches. General health improved; weight increased. Within the last week the patient has developed signs pointing to metastases in the lungs. (July 15, 1902: The thigh has continued to improve but the signs in lungs remain, though there is no increase.)

Case III.—Recurrent, round-celled sarcoma of pectoral region with very extensive axillary involvement. Three months' treatment with the mixed toxins of erysipelas and bacillus prodigiosus. Marked decrease in size (at least two-thirds) from necrosis of tumor tissue and absorption. Three months' treatment with the toxins, plus X-rays. (July 1, 1902: Tumor has entirely disappeared and patient has returned to his home.)

Case IV.—Round-celled sarcoma of thigh (muscle and fascia), recurrent and of very rapid growth. Three weeks' treatment with the toxins; no improvement. Three weeks' treatment with the X-ray; no effect on pain or on rapidity of growth. Treatment abandoned.

Case V.—Round-celled sarcoma of parotid, recurrent, of very rapid growth. Toxins given for three weeks; no effect. Ligature of external carotid artery and X-ray treatment for two weeks. Growth apparently not influenced. Pain slightly decreased. Death two weeks later. Entire course of disease, five months.

Case VI.—Five times recurrent, round-celled melanotic sarcoma of femoral and iliac glands. (Primary tumor in skin of ankle.) X-ray treatment, eighteen exposures. Decrease in size of tumor; less pain; improvement in general condition. Still under treatment. (July 15, 1902: General condition growing worse.)

Case VII.—Spindle-celled sarcoma of superior maxilla, recurrent, inoperable. Treated for three months with the mixed toxins with very great decrease in size, the growth having nearly disappeared. The tumor then increased in size and was no longer influenced by the toxins. X-ray treatment used for six weeks; slight decrease in pain at first, but later neither pain nor growth influenced by the rays. Treatment abandoned.

Case VIII.—Small round-celled sarcoma of gracilis muscle and inguinal and iliac glands. Three operations followed by rapid recurrence. The mixed toxins, and finally living cultures of streptococcus were injected for several weeks.

* Abstract of the paper read before the American Surgical Association at Albany, N. Y., June 5, 1902.

Growth was inhibited, but not checked. Recurrent tumor in muscle of thigh treated with X-ray for three and a half months, eighty exposures being given. Slight decrease in size at first, but growth not entirely checked. No return in groin or iliac fossa. Tumor slowly increased in size and was removed on June 3, 1902. Microscopical examination of specimen showed slight increase in fibrous tissue over that found in earlier specimens. (July 17, 1902: The patient had three weeks' treatment with the X-rays and mixed toxins, after the operation on June 3. August 1: At present there is no evidence of a return of the disease and nothing can be felt in groin or iliac fossa, from which locality it was found impossible to remove all of the tumor at the operation in November, 1901.)

Case IX.—Small round-celled sarcoma of back (fascial) recurrent. The patient has had but twelve treatments and it is too early to state the probable result. The growth is evidently not increasing in size. (July 17, 1902: The X-ray treatment has been kept up three times a week, and at present the growth has entirely disappeared.)

Case X.—Very extensive, round-celled sarcoma of parotid, involving entire side of face and extending behind the ear. Six weeks' treatment with the X-ray. Pain diminished; marked necrosis of tumor and considerable decrease in size. Patient is still under treatment.

All of the patients were treated with a 12-inch coil (Willyoung) and with fairly high tubes, the usual distance being 10 inches, and the time of exposure varying from eight to 15 minutes.

The histories of four other patients, formerly under my care—all totally inoperable, but treated by other men—are of the greatest interest in connection with the foregoing cases.

Case I.—Small round-celled sarcoma of the neck, six times recurrent. Toxin treatment during May and June, 1901, with ligature of external carotid. Very slight effect upon the growth of tumor. Treatment abandoned and case regarded as hopeless. X-ray treatment (static machine) by Dr. E. R. Fiske of Brooklyn, December, 1901; six weeks. Entire disappearance of growth. Patient exhibited by Dr. Coley at the New York Academy of Medicine, March, 1902, with the following history:

G. F. H., seventy years of age, admitted to the General Memorial Hospital. Family history negative. About ten years ago a lump was first noticed on the left side of the neck. Nine years ago this was removed at the New York Hospital. The tumor recurred one year later in the scar and grew much larger. The patient has had four subsequent operations within the last seven years. One tumor was removed from the right side of the neck, the others recurring in the region of the cicatrix of the original growth on the left side and behind the ear.

Physical examination on May 13, 1901, shows a tumor the size of an orange occupying the left mastoid region. The tumor is very vascular and semifluctuating. There is glandular involvement behind the jaw on the right side; also a growth the size of a small orange in the right femoral region. There is a hard, freely movable glandular tumor in the right axilla. The patient was treated with the mixed toxins of erysipelas and bacillus prodigiosus, 13 injections being given between May 13 and June 5, the highest temperature reached being 102° F. On June 5 I tied the external carotid artery on the left side, under ether anesthesia, using chromicized tendon for the ligature. The wound healed by primary union and the patient then left the hospital, but returned July 16 for another course of the toxin treatment and remained until July 27, eleven days. At first there was some slight improvement following the injections of the mixed toxins, but later on there seemed to be very little, if any, influence from the treatment. The patient seemed to become rather tired of hospital life and was discouraged. He returned home on July 27, the tumor at that time being about the same size as when he entered the hospital, the base occupying the mastoid region and extending down to the neck, pushing the ear forward. It was not attached to the bone, but was absolutely inoperable and, as I believed, hopeless.

On December 22, 1901, the patient was treated by Dr. E. R. Fiske of Brooklyn with the X-rays. The patient states that for some time he had been trying to find a physician or surgeon to give him X-ray treatment, but had failed until Dr. Fiske took him in charge, offering to give him two weeks' trial, but holding out very little hope as to the result. A static machine was used and an exposure of ten minutes each day was made for two weeks, when the treatment was continued for two weeks longer, the exposures being made for fifteen minutes. At the end of four weeks' time the exposures were lengthened to twenty minutes. In all, the patient had six weeks' treatment. His condition at the time of the beginning of the treatment was as follows: On the left side of the neck, just behind the ear and extending downward, was a large tumor, fully the size of two fists, pushing the ear far forward. There was also in the right axillary region a tumor the size of a goose-egg. Almost immediate improvement was noticed after the beginning of the treatment and the mass rapidly diminished in size. At the end of six weeks it had entirely disappeared. The patient states that at the end of from three to four weeks he noticed a softening of the tumor in the right axilla, although no exposures were made in any other region except the neck. This softening continued and the tumor gradually disappeared until February 20, 1902, when it could scarcely be felt.

This case is certainly one of the most remarkable of its kind yet recorded, showing the beneficial influence of the X-ray upon sarcoma. The repeated recurrences, together with the numerous microscopical examinations, place the diagnosis absolutely beyond a doubt. Dr. Fiske is certainly

to be congratulated on the remarkable result. I have carefully gone over the pathological reports of the specimens of the New York Hospital, and have also examined some of the slides with Dr. George Biggs, the pathologist. There can be no doubt of the diagnosis.

The following are pathological records from the New York Hospital:

February 21, 1892, Specimen No. 2201, T. No. 2: G. F. H., aged sixty years, has had a tumor on the left side of the neck, posterior to the scalenus anticus muscle, for three years and four months. Of slow growth at first, the tumor has grown rapidly during the last three months. No glands are involved. Operation February 20, 1892. The specimen is an oval tumor, 7x4½ centimeters; no capsule; on surface the voluntary muscle fibers are seen invaded by the tumor tissue. Line of incision has gone through the tumor tissue at several points. Microscopically, the tumor is a typical round-celled sarcoma with small amount of fibrous tissue struma, apparently derived from tissues in which the growth originated.

October 24, 1893, Specimen No. 2926: Tumor the size of a hen's egg in left side of neck; freely movable. Microscopical examination shows this growth to be simple adenitis.

September 6, 1896: The patient has had three operations since 1892—the first on February 20, 1892; the second one year later in the region of the old cicatrix; the third in 1894, this time a tumor being removed from behind the right ear. For four or five months the patient had noticed a swelling in the left side of the neck just below the ear near the scar of the first incision. The tumor grew gradually and was painless. Operation September 6, 1896. The specimen consisted of two masses, 8x5x3 centimeters and 2½x2½x2. Both tumors were entirely encapsulated. On section both tumors proved to be of grayish color and to have the gross appearance of sarcoma. Microscopically the tumors are found to be small, round-celled sarcoma. I merely wish to place this on record as one of the earliest and most striking cases of sarcoma successfully treated with the X-ray, and to add that the full credit of this remarkable success belongs to Dr. Fiske, who carried out the treatment and who kindly permitted me to show the patient before the society.

Case II.—Spindle-celled sarcoma of abdominal wall, involving almost entire abdominal wall. (Tumor, when X-ray treatment was begun, size of eight months' pregnant uterus.) Toxin treatment had been given for ten months, with great benefit at first; later no effect on growth. Referred to Dr. Clarence Skinner of New Haven, in January, 1902. Patient has been treated three times a week since by Dr. Skinner with static machine. Examination, two weeks ago, showed the patient much improved in health but there was little change in the size of the tumor. Still under treatment. (June 20, 1902: Patient's general condition is getting worse; she is losing weight. Recovery doubtful.)

Case III.—Round-celled sarcoma of superior maxilla, recurrent, with extensive involvement of face, nose and orbit. Toxins were tried for four months with little effect. Referred to Dr. W. B. Snow for X-ray treatment, January, 1902. Treatments have been given with static machine three to four times a week since. Very great improvement in local and general condition. Still under treatment. (July 9, 1902: Examination to-day shows that as a result of very extensive sloughing and absorption the tumor has decreased to a small fraction of its original size.)

Case IV.—Recurrent osteosarcoma of side of head, mastoid region and parotid, entirely encircling ear. Toxin treatment at intervals for one year. Growth inhibited but not checked. Patient's general condition very bad. Referred to Dr. W. J. Morton, January, 1902, for X-ray treatment. Has been treated four times a week up to the present time. Almost complete disappearance of tumor and improvement in general health. Excruciating pain, which required one-half grain morphine every two hours, nearly ceased after a week's treatment. (June 16: There has been no apparent increase in the size of the tumor, but the patient's general condition is very bad as a result of an extensive cellulitis of the neck which has recently developed. With incision and drainage this disappeared, and the patient has since continued to improve.)

Conclusions—I am conscious that the present series of cases is too small and the time of observation too short to justify one in drawing any dogmatic conclusions as to the permanent therapeutic value of the Roentgen ray in sarcoma. Still, I believe, we are warranted in stating:

(1.) That the results in the cases thus far treated prove that the Roentgen ray has a remarkable inhibitory action upon the growth of all forms of malignant disease and that this is especially true of sarcoma.

(2.) That this action in many cases of even far-advanced and inoperable malignant disease may result in the total disappearance of the tumors, often without any breaking down of the tissues, the new growth being apparently absorbed.

(3.) Whether the patients have been cured, or the disease has been merely arrested, to reappear at some future date, is a question that time alone can decide.

(4.) Recent observations and experiments upon the various forms of carcinoma and sarcoma prove that an agent supposed to be of value only in a very limited class of superficial epitheliomas promises to be of as great or even greater value in practically every variety of cancer.

(5.) While at present there is little evidence to show that deep-seated tumors in the abdomen and pelvis can be cured or benefited by the Roentgen ray, there is still some reason to hope that with improved apparatus or with greater knowledge and skill in using the apparatus that we now have, even these cases may be benefited.

(6.) The Roentgen ray has a very marked influence upon the pain of nearly all types of malignant tumors, causing entire relief in the majority of cases.

THE PRESENT STATUS OF CANCER: ITS ETIOLOGY AND PATHOLOGY—THE VALUE OF LABORATORY RESEARCH.[1]

BY EDWARD N. LIELL, M.D.,
OF JACKSONVILLE, FLORIDA.

ALTHOUGH the chosen topic is of a more or less technical character, it is not my desire to permit of the presentation of exaggerated claims pertaining to recent bacteriological researches as regards the cause of malignant disease. We must admit as yet our shortcomings in the department of original research and laboratory work. With the additional facilities gradually obtaining, however, through the creation and endowment of laboratories, the American will in a short space of time be the peer of any. The search for the causes of disease has naturally led more directly to prevention than to cure. Especially is it due to the development of embryology and comparative anatomy, along with pathology, that our views of the nature of disease have become so much more accurate. Modern pathology and bacteriology are the foundations of the progressive and aggressive surgery of to-day, the latter being attended with gradually decreasing suffering and trial, and the shadows growing more and more dim from day to day. The perfection of the microscope has made possible the former, while the discovery of anesthesia, antisepsis and asepsis has been the means of marked advancement in the latter. It is by means of the high-powered oil immersion lens, with which most of us are familiar, that the science of bacteriology has been evolved and the problems of infectious diseases solved. As a means of diagnosis, however, the microscope is but an aid to clinical symptoms and observation. Bacteriology, a world in itself, is the most imposing and impressive department of medical biology. Cultivation and staining are its main factors; and if, in years to come, more and more of the germs of disease are recognized, it will be due to the perfection of improved methods for coloring and making visible these formerly invisible entities.

The experiments of Louis Pasteur, proving that fermentation and putrefaction or decay were associated with micro-organisms, prompted other investigators to attempt to demonstrate the close relationship of micro-organisms to disease. Thus appreciating the work of Pasteur, Joseph Lister made practical application of the theory in regard to chemical changes taking place in fluids during the process of putrefaction and applied them to the processes of repair in wounds. The brilliant results attained by him in 1867, while surgeon to the Glasgow Royal Infirmary, showing the intimate relationship of micro-organisms to wound infection, thereby developing a new era in surgery and in the surgical treatment of wounds, needs no elaboration by me.

This epoch-making bacteriological discovery has given a past to and well nigh eliminated such surgical complications as erysipelas, hospital gangrene, septicemia and even tetanus. Yet, strange as it may appear, this work of Lister remained for some time unappreciated, being received with scepticism and distrust. It seemed at that time visionary for one to claim to heal wounds without suppuration. And here I may be pardoned if I inject into my theme my visit to and kindly greeting by Lister, through a letter of introduction given me by the lamented Dr. J. Marion-Sims, whom I had known personally for some ten years previous. While walking the various hospitals of London, from February until October, 1883, I presented my letter to Lister one day at the close of a clinic at Kings College Hospital. With genial hospitality he conducted me through the various wards, going from patient to patient and taking special pains to instruct and instil into me his method of dressing wounds. You can imagine my pleasure in receiving, while yet an undergraduate, such consideration and in such kindly words, too, and I can assure you its impression has never to this day been dimmed in the slightest degree.

It was not until 1860 that the foundation and superstructure of cellular pathology was laid by the great Virchow, whose master mind is still at work in his chosen field. Application to this branch has given us accurate and detailed information as to anatomical changes requiring surgical interference. The names of Rudolf Virchow, of Louis Pasteur, of Sir Joseph Lister and of Robert Koch represent the latter half of the nineteenth century's greatest achievements in experimental medicine.

In an able paper by Dr. John A. Wyeth, on The Value of Clinical Microscopy, Bacteriology and Chemistry in Surgical Practice, delivered as the Address in Surgery, at the last meeting of the American Medical Association, is the following: "While I would in no measure detract from the value of a thorough technical knowledge, we should not, in our attention to the art, fall short of a proper appreciation of the science of surgery. The experienced surgeon soon learns that it requires more than asepsis and the rapid and skilful performance of an operation to achieve the fullest measure of success; that although a thorough practical knowledge of regional anatomy is essential in the highest degree to the conscientious fulfilment of the professional obligation, it is equally important that there be called into requisition the invaluable aid which laboratory research alone can give in determining an accurate diagnosis."

The discovery of antitoxins, the natural antidotes to the poisons of infectious agents, is one made at the end of the past century. Its existence was not recognized until the presence of parasites and poisons generated by them was

[1] Anniversary address, delivered at the Twenty-ninth Annual Meeting of the Florida Medical Association, Tampa, Florida, April 9, 1902.

proven. What is true of diphtheria, in the triumph achieved through Behring and Roux's discovery of an antitoxin serum, may be true of all infectious processes; and as our knowledge expands a safe immunizing serum may yet be discovered for each special toxemia.

The etiology and pathology of cancer are the most important questions of the day; a flood of light is about to be focused on its dark problems, giving strong hope of an early definite solution. Whatever theories may exist as to its cause, two facts in its history are at present generally admitted: First, in its inception it is of local origin, the process of generalization being relatively slow; second, it is the result of traumatism, or local irritation of the part affected. Its loathsome and fatal nature and the careful investigations conducted at present with regard to its origin and eradication combine to invest the disease with rare importance.

The claim is made by Roswell Park that not only have pathologists, in their studies from autopsies, missed some of its most important aspects, but that surgeons, seeing in this mystery only the question of how far they may go with the scalpel have missed the fundamental theories of its origin and the consideration of its etiology upon which its whole successful therapy must be based. As patent predisposing causes I would mention heredity, racial, climatic, and topographical influences. While generally occurring in persons of advanced age, it is not infrequently met with in young adults, the disease in the latter instances being characterized clinically by greater malignancy. In a recent statistical paper by Dr. Lyon, bearing upon the distribution of cancer in Buffalo for the past twenty years, he points out the fact that it has been relatively on the increase, from 32 per 100,000 in 1880 to 53 in 1899. Dealing also with race distribution, he states that Germans and Poles, constituting but 20 per cent. of the population, are credited with 42 per cent. of the cancer mortality; while native Americans, constituting 65 per cent. of the population, are credited with but 29 per cent. mortality. Statistics further show that one out of every 14 men, and one out of every 9 women reaching the age of thirty-five years, die of cancer.

Cicatrices, benign epithelial growths, and chronic inflammatory conditions, also favor the development of malignant disease. As regards the influence of mental depression on the development of the latter, Dr. J. D. Bryant has within the past year investigated the relation existing in death by cancer between the mentally sound, the melancholics and those afflicted with other forms of insanity, his conclusions being that it can scarcely be considered a factor in etiology. The relation of trauma to malignant diseases is an established fact, especially shown in scirrhus of the breast and epithelioma of the cervix uteri.

Ever since the announcement of Schwann's theory of life and Virchow's cellular theory of morbid processes, the point of view of the pathologist and the biologist has been the same. The latter are now workers in the same field, viewing vital phenomena in the focus fixed for them by the two investigators named, as well as by Darwin, Huxley and Spencer. In the study of the origin and evolution of the subtle vital processes which go on in the cell lies the key to the problems of life and disease. In studying the phenomena of cell-division, one can more readily understand, according to Dr. E. B. Wilson, in an address before the Yale Medical School in June last, how mental and physical characteristics have been handed down from parent to offspring on both sides from generation to generation.

Malignant diseases are now included in a division termed parasitic, being composed of natural cells and tissues of the body passing out of their proper location and vocation, arrogating to themselves the license of unlimited multiplication and growth.

Recent researches tend to prove not only the infectious nature of cancer, but its inoculability as well. Cases are recorded in which the disease has spread by contact infection and in which cancer of the upper alimentary tract has been followed by the disease appearing lower down. A primary outbreak of the disease in the fundus of the uterus has been followed by similar lesions of the cervix, and *vice versa*. In the pelvis it is not infrequently due to infection with nodules detached from cancerous growth in the upper part of the abdomen. Traumatic dissemination of the disease by inoculation of wounds during operation is generally admitted. Yet Senn, claiming that proof is lacking that cancer has ever been inoculated, attempted to inoculate himself with a piece of fresh cancer taken from a lip, the small papule forming at the site of inoculation soon disappearing, leaving but a small scar. This single instance seems to me but scant proof in favor of his assertion, since we not infrequently meet with similar conditions and failures resulting from vaccine inoculation. A virtual admission of the infectious nature of cancer by one of the strongest opponents, Roger Williams, is the warning given that care should be taken to avoid cutting into the malignant neoplasms during their removal, for the tenacity of life and the wonderful proliferative power of even the most diminutive fragments of cancer is such that, when left behind, they only too often constitute fresh centers of disease.

Some progress has been made within the past two years toward a solution of the problem of its etiology and pathology through the careful investigations of Drs. Gaylord and Park at the New York State Pathological Laboratory. Those included not only the ordinary histological and bacteriological methods, but also its study from a biological and chemical standpoint. They have satisfied themselves that death in cases of cancer results from a terminal—a hematogenous—infection, brought about by a distinct toxemia. In their experiments upon animals, by inoculation and injection, this feature has become so very distinct as to be positively striking.

Examination of fresh scrapings and of numerous tumors showed that in all rapidly growing tumors a great number of parasitic organisms were present. Also through experiments upon animals and by postmortem examinations of patients dying of cancer, they have been able to demonstrate that all the organs, as well as the blood, of patients dying of cancer, including sarcoma and epithelioma, contain large numbers of parasitic organisms, polymorphic to an extreme degree, masquerading under many forms and changing with their different stages of reproduction.

By incubating hanging-drop preparations of fresh scrapings from cancer, the smaller forms can be followed in their development as they increase in size; and if kept upon a warm stage they may be seen to throw out especially developed nuclei and conclude their life history by a formation of a sac in which they develop their spores. This so-called cancer parasite is usually intracellular, gradually increasing in size, the nucleus of the cancer cell usually plainly visible, being pushed aside by the parasite.

Comparing the plates of various writers, the most striking feature is in the fact that, while they all agree as to the extraneous nature of certain cells which they picture in various stages of cell-division or reproduction, they differ in great part in the peculiar interpretation of the phenomena they illustrate; an Italian writer showing the presence of blastomycetæ, the French terming them protozoa, while the German investigators indicate them as products of cell degeneration.

Although the trend of opinion before us is that cancer is of parasitic origin, the minute nature of the germ is as yet unknown; from the knowledge obtained through recent investigators, we may glean that different forms of those parasites have specific tendencies in one direction or the other. We are undoubtedly nearer the light which is sure to come from future investigation.

Cullen, of Johns Hopkins, has recently shown that from three varieties of uterine epithelioma as many distinct types of carcinoma may be developed; and the opinion has also been advanced by an active investigator that it may, and probably will, be found that the parasitic origin of cancer is not a question of any single organism, nor even of a single class, its analogy existing in the several organisms producing pus formation and in the three known types producing malarial fever. Although carcinoma as a type of disease is an example of epithelial infection (for without infected epithelium there is no cancer cell or cancer formation), and although sarcoma is an infection of connective tissue—in all probability by the same organisms, the tissue cells reacting somewhat differently—further research will elucidate the problem as to which kind of parasite prefers the epithelial cell and which the connective-tissue cell.

While Cullen declares that all efforts in the line of culture of the parasite have so far met with negative results. Gaylord, on the contrary, states that in his later experiments upon animals he has succeeded in cultivating an organism directly from cancer, the culture medium being fucus crispus bouillon. Attempts to stain them were, however, but partly successful. From these experiments he determined to his satisfaction the identity of the organisms found in the fresh state and the forms known as Russell's bodies, Plimmer's bodies, and the protozoon forms in the tissues. This organism was found abundantly in all organs, including the blood, in all cases of cancer; when the cachexia was well marked the organisms, especially in their younger forms, were found in the peripheral blood.

Touching upon the question of diagnosis, it is of the greatest importance in suspected malignant disease, for upon an early diagnosis and an early operation depend the success and even the possibility of any radical treatment. Acuteness in diagnosis is the result of general learning and familiarity with all the elements conducive to a true appreciation of both symptomatology and pathology.

The fallacy of the classical teaching concerning climacteric hemorrhages has done more than anything else to prevent an early diagnosis of cancer of the uterus. All cases with irregular hemorrhages should be promptly investigated. The importance of an early recognition of epitheliomatous degeneration of the cervix, as also of the body of the uterus, is in evidence. In the knowledge that its occurrence is mainly in old cases of laceration of the cervix, being actually a disease of the child-bearing woman, recourse should be had to early operation so that the cervix may not present a spot of least vital resistance favorable to the development of the disease.

When a suspicion of malignant disease exists a microscopical examination of *débris* from the uterine cavity, through an exploratory curettage or a portion of tissue excised, should be made as a means of arriving at a correct diagnosis. While it has been questioned whether a preliminary microscopical section should be made for diagnostic purposes, in that the procedure might increase the activity in the growth, it is my conviction that every suspicious growth should, when possible, be subjected to pathological examination.

Because of the great variety in the nature of breast tumors and the tendency which even benign tumors have to undergo pathological changes, developing not infrequently into malignant growths, it is imperative that every tumor of the breast of whatever nature be excised, and at the earliest possible moment. The fact that cancer-cells have been found below the fascia in such tumors proves the necessity of extension of surgical interference by removal of the pectoral muscles and the glands in the axilla. It is a fact that when cancer cells have disseminated themselves so that they are not accessible to the scalpel a speedy relapse is to be expected. If the case be dealt with early in the course of the disease the hope of long freedom from a return is almost assured; its reappearance after a period of three

years or more is to be regarded as a new infection.

In the diagnosis of certain obscure surgical lesions of the stomach, and as an aid in arriving at the exact condition of the digestive functions of the organ—any derangement of which it is at times important to correct in order to prepare a patient to withstand an operation—the laboratory proves of invaluable assistance.

A ray of hope in both inoperable and post-operative sarcoma is afforded by the use of Coley's preparation of the mixed toxins of erysipelas and bacillus prodigiosus. The true explanation of the action of the toxins is probably found in the parasitic and infectious origin of both sarcoma and carcinoma.

In the modest Physical Institute of Würzburg, Bavaria, the X-ray first saw the light, marking Roentgen's epoch-making discovery and research on the cathodic rays of Crookes. The theory advanced by Hopkins, in his work on treatment of carcinomatous growths by the X-rays, using the soft tubes only, is that their power of altering tissue is in proportion to the power of that tissue to resist any destroying agent. The embryonic cells which largely compose carcinomatous tissue are made up of unstable molecules and can readily be rearranged or even destroyed.

This brings us to a realization of the fact that the results achieved in the treatment of malignant disease are as yet markedly deficient, though favorable in contrast to those of only a generation ago. Out of the growth of elaborated surgical methods a more optimistic view has come into existence, recent statistics showing that, with modern technic, the period of immunity from recurrence after radical operation is lengthening and the percentage of apparent cures steadily increasing.

The surgeon's art lives on and will live on forever. In the tendencies of to-day is foreshadowed what lies buried in the future. Standing as we do at the threshold of a new century let our confidence be unshaken in anticipating still greater and equally marked developments in the field of bacteriology and surgical pathology.

REPORT OF A CASE OF NON-TRAUMATIC ACUTE SUPPURATIVE OSTEOMYELITIS WITH CATARRHAL COXITIS: WITH REMARKS.

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CHARLES R., white, a schoolboy, aged thirteen years and three months and in perfect health, walked down town from the Academy, a distance of about a mile, on the evening of November 9, 1900. While there he accidentally struck himself smartly upon the inner aspect of the right ankle with the rounded head of a wooden ramrod. Returning shortly to the Academy he had made about half the distance when he began to limp on account of the pain in the right foot. He arose the next morning and hobbled over to his breakfast, but as the sight of food caused a sensation of nausea, he refused his breakfast.

His temperature was taken at 10 A.M. and found to be 101° F. Despite this he was assisted to the football field by his schoolfellows to witness a game. There was snow upon the ground and a chilling wind prevailed. After twenty minutes' exposure he became chilled and asked to be taken indoors, where he hung about the radiator for an hour when, on attempting to crawl upstairs to his room, he found the attempt futile without assistance. His evening temperature was 102° F. On being telephoned his condition I took him the same night to his home in Chicago, a distance of thirty miles by rail. That evening he began to complain of pain in the right groin. The ankle was red and painful on movement. The foot was swollen, especially on the dorsal surface with veinlets coursing over it. There were no abrasions. A small scab appeared on the fourth toe, covering a minute abrasion possibly due to friction from the breaking in of a new pair of shoes on the day preceding the inception of the disease. There were no corns nor ingrowing toenails. The mucous outlets of the body showed no signs of infection.

On the following day some red scattered patches appeared along the line of the femoral vein. These were visible for several days and betokened a lymphangitis along the course of that vein. The spontaneous agonizing pain in the right thigh, referred by the patient to the area of Scarpa's triangle, persisted in a mild degree, but with frequently recurring exacerbations and with such severity as to require a $^1/_{16}$-grain pellet of morphine sulphate on the third, fourth and fifth nights of the disease. The temperature for the first week varied from 100 to 103.4° F. There was always an evening rise. During this time there were marked night sweats, and the perspiration had a sour odor.

In the meantime the ankle-joint, which had been kept wrapped in cotton batting, caused but little concern to the patient, and as a clinical phenomenon soon fell into insignificance, the foot and ankle appearing normal within two weeks from the onset of the disease. About this time the patient was carried to the bath-room for a warm bath, and it was noticed that while holding him supported by his well limb there was absolute inability on his part to swing or move the affected limb in the least degree in any direction. Its inertia when at rest in the hanging position could not be overcome one iota by the earnest endeavor of the patient and to his great astonishment. This sign, as I have since learned, is of the greatest diagnostic import in osteomyelitic coxitis. Reflected pains in the knee-joint had been frequently complained of, I may add.

Up to this time the diet consisted chiefly of three pints of fresh cold milk *per diem*. The pulse ranged from 90 to 114 beats per minute; the tongue presented a creamy coat with a tendency

at times to show a brown dry streak along its central line; the bowels were regular and normal; the urine was free from albumin. At the end of the second week the temperature curve touched the normal, but, an evening rise up to 100° F. persisting, I expressed my anxiety and apprehensions in the case to Dr. Arthur D. Bevan, who kindly consented to examine the case for me. He saw the patient for the first time on the twenty-sixth day of the disease and noted the following conditions:

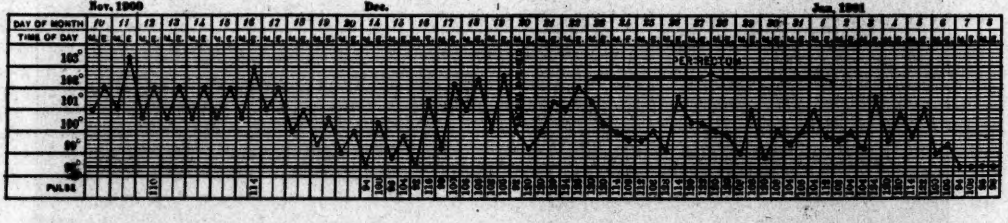
A cord-like mass in the right thigh extending from Poupart's ligament, or slightly above, to the location of Hunter's canal. The anterior aspect of the affected thigh was broader than that of its fellow; there was an unusual degree of hardness or stiffness in the region below Poupart's ligament and the anterior spine of the ilium had lost its prominence. The limb rested most easily in a position of partial flexion at the knee with slight abduction and external rotation of the femur. The case was regarded as one of an infectious nature and the fever as septic in character. Perfect rest was enjoined with an abundant nutritious dietary. I might note here that throughout the entire course of the disease the appetite was excellent with but few exceptions, and the functions of assimilation and excretion were splendidly performed.

Four days after Dr. Bevan's first visit the temperature became normal and remained so for three successive days; but a marked evening rise again recurring, Dr. Bevan again saw the case (December 16) and advised the use of a Buck's extension apparatus. Accordingly this was applied without delay, a weight of five pounds being used. For the next three days the temperature again became remittent, ranging between 100 and 102.6° F. Fearing some complication of the internal organs, at Dr. Bevan's request I asked Dr. J. A. Capps to see the case with us. He made a thorough examination of the internal organs and pronounced them free of infarctions and all other pathological entities. This exclusion of disease of the vital organs strengthened our suspicions of a deep-lying abscess of the thigh, too deep-lying for the palpating fingers to detect fluctuation. On the following day (December 20) the patient was removed from his home to the Presbyterian Hospital, where he was kindly seen by the late Dr. Christian Fenger, who encouraged an attempt to locate the abscess by explorations with a long hypodermic needle. The following notes were made at this time by Dr. Frank H. Russell, senior interne upon Dr. Bevan's division, on the local examination of the affected region: "Inspection: No abrasions of skin; leg flexed at knee and in outward rotation; slight reddening and swelling on inner side of thigh, high up. Palpation and manipulation:

SKIAGRAPH OF PELVIS, SHOWING CONDITION OF RIGHT FEMUR.

Patient does not complain of pain when his leg is gently rotated; pressure upon the ilium is not painful; femoral vessels free; upon the inner surface of the thigh about two inches below Poupart's ligament is the point of induration."

Operation (December 20) by Dr. Bevan; cocaine anesthesia, 1 to 1,000 Scheich's mixture: about 40 minims used. Needle of aspirating syringe introduced upward and outward towards the lesser trochanter. Upon penetrating to the depth of about three inches, the point of the needle gave the sensation of having entered an abscess, but upon aspirating, no fluid appeared; it was thought that the needle had become clogged, and upon its withdrawal a serous-looking fluid followed along the line of puncture and escaped with some force as though under considerable pressure. An incision 1½ inches in length was then made through the skin and the pocket cut down upon with the escape of about 50 c. c. of pus. The probe showed denuded bone at the base of the lesser trochanter posteriorly, in the fossa, as it were. A rubber drainage-tube of the size of a lead pencil was inserted and hot moist boric-acid dressing applied. The patient was placed in bed and a Buck's extension apparatus applied. The drainage-tube, or one of



smaller dimensions, was finally dispensed with two months and three days later. Of the pus evacuated on the day of operation, growth upon nutrient media gave a pure culture of the staphylococcus pyogenes aureus.

Four days after operation a blood-test was made with the following report: Hemoglobin (Fleisch) 53 per cent.; red corpuscles 4,080,000 in 1 c.c. blood; white corpuscles 9,900; no differential count of the leucocytes was made.

This lad left the hospital on January 21, 1901, but the limb was kept encased in a plaster-of-Paris dressing extending from the toes to the armpits, the drainage-tube being permanently removed on February 23. Crutches were then used to permit of locomotion and finally about two weeks later the plaster-of-Paris case was abandoned and a cane substituted for the crutches.

At this time examination revealed the absence of any bony ankylosis at the hip-joint, the partial or fibrous ankylosis, however, being sufficient to hinder the lad from sitting equally on both ischia at the same time and from describing with the injured limb the requisite curve in bicycling. By massage and gentle passive motion sufficient movement in the joint was regained to allow of a natural posture in sitting and of riding the bicycle. Forty treatments in mechanical exercises, conjoined with alternate hot and cold douches to the body and followed by massage, were taken at the Hygienic Institute in Chicago under the management of Professor Matsen.

The two potential evils that always beset a limb recovering from an osteomyelitis are over-exertion and exposure to cold, and in view of the former it becomes a matter of delicate discrimination how far passive movements may be carried without reexciting the inflammatory element. The shortening of the limb in the present instance amounted to 2 cm., which has been readily and in a large measure satisfactorily overcome by the use of a cork insole chiefly under the heel of the foot. This insole has been very skilfully fashioned and supplied by Mr. Don Lyle. In case the upper of the shoe does not meet in the central line over the tongue, a new upper can be manufactured for the shoe of the affected side having regard for the presence of the insole.

In conclusion, while the tuberculous form of osteomyelitis is sufficiently common to have come, time and again, within the observation of every practitioner of surgery, the form indicated by the caption of this paper, comparatively rare, well-defined in its symptomatology and demanding early recognition for its successful treatment, is, I venture to say, often erroneously diagnosticated in its incipient stage. One must be not only well informed upon this subject, but constantly upon one's guard if one will cleverly diagnosticate the first case of the kind that may fall into one's hands.

Remarks.—Among the very recent literature on the subject of diseases of the hip-joint, exclusive of the tuberculous form, Hoffa, in the *Handbuch der Praktischen Chirurgie*, 1900, makes some interesting remarks pertinent to the case above related, upon the subject of coxitis in consequence of osteomyelitis. In Sayre's clinics during my student days these cases were all regarded as referable to a trauma as the etiological factor of the disease, but in very recent times an almost complete reversal of opinion has set in, based upon modern methods of bacteriological research and more exact clinical observations. Owing to the countless knocks and mishaps of childhood and youth it was not difficult for the clinical recorder to light upon some recent trauma with which to satisfy his preconceived notions of the etiology of hip-joint disease; but with the recent light that bacteriology has shed upon the parasitic nature of the infectious fevers and the rôle played by

the pus-formers in inflammatory conditions, the clinician's change of front has been both rational and wholesome. In the *Tübingen Klinic* Hoffa states that there have been observed and recorded, during the last forty years, 106 cases of hip-joint osteomyelitis. In only 3 cases was the disease referred to as "catching cold." In 15 cases, trauma, such as a stroke from a stick or a fall upon the joint or a strain from sliding, etc., was alleged as the exciting cause. As to ages, 12 cases out of the 106 occurred between one and five years; 25 between five and ten years; 43 between fifteen and twenty years; 2 between twenty and twenty-five years; and one only at twenty-six years. The male sex was more frequently affected than the female, but there was little difference in the side affected; there being 48 right, and 46 left and 12 double.

Going on with a very free translation from the German, which I make, Hoffa, under Pathological Anatomy and Symptomatology, remarks: Osteomyelitic coxitis may originate as well from an affection of the femur as of the acetabulum. in the case of the former a purely epiphyseal localization is very rare. Most generally the diaphysis and epiphysis are simultaneously affected. Indeed, in a larger sense the epiphysis may be considered as extending from the level of the trochanter minor. The special characteristic of epiphyseal osteomyelitis as contrasted with diaphyseal is that in the former the infection foci are for a long time circumscribed. Out of these foci are developed multiple bone cavities filled with pus or granulations and generally small particles of osseous material-sequestra. These latter may become absorbed or may remain for years.

The finality of epiphyseal osteomyelitis is generally atrophy and diminution of the bony parts involved. The epiphyseal cartilage forms a natural barrier against the extension of the inflammation, but the epiphysis may become loosened from the diaphysis and necrose, and the head of the bone become a free body in the joint cavity. With these inflammatory extensions an inflammation of the synovial membrane goes hand in hand, from a light adhesive serous or catarrhal synovitis to a complete suppuration and destruction of the joint.

Symptoms.—A sudden invasion—a child takes to bed from the first day—fever and chilly sensations and a complete abolition of functions of the affected limb, with terrific spontaneous pains in the hip or knee. Pressure over the trochanter, or striking the soles of the feet, and any attempt at passive movement of the limbs increase the pains. (In tuberculous coxitis the onset is not sudden.) Swelling about the hips and gluteal and anterior femoral regions of a boggy edematous character sets in. There may be multiple joint affections, as in rheumatism. In some one joint the inflammation becomes localized while the other affected joints clear up. The catarrhal cases may clear up in from four to six months or possibly a year: the suppurative cases may continue for three or four years should the patient not succumb to pyemia, septicemia or some intercurrent affection or amyloid degeneration of organs. Spontaneous luxation of the joint may ensue with ankylosis and distortions; namely, flexion, adduction, abduction, rotation, or combinations of these.

MEDICAL PROGRESS.

MEDICINE.

Digestion and Assimilation of Albuminoids.—It is now known that pepsin and trypsin not only change albuminoids to albumoses and peptones, but by further transformation produce crystalline bodies which are identical with those obtained artificially by hydrolysis of the albuminoids. Albuminoid derivatives, writes E. SCHMOLL (Sem. méd., July 30, 1902), may be classed into two groups; namely, acid bodies giving the biuret reaction (the acid albumoses, the deutero-albumoses, and the peptones), and basic crystalline bodies which do not give the biuret reaction (arginin, lysin, histidin, glycocoll, leucin, tyrosin, and amidopropionic, asparaginic and glutamic acids, etc.). New proteolytic ferments also have been lately discovered, so that in the stomach, besides pepsin, there is pseudopepsin, secreted by the pyloric glands, and in the intestine, besides trypsin, there is érepsine, secreted by Brunner's glands, and capable of decomposing albumoses and peptones, but not unchanged albuminoids. Zunz has demonstrated that after three or four hours of pepsin-digestion 30 to 40 per cent. of albumin has lost its albuminoid structure, being no longer precipitated by phosphotungstic acid, and has become crystallizable. The rest is albumose, with a mere trace of true peptone. The crystallizable bodies are the most readily absorbed by the gastric mucosa, but are not found at all in the blood, and appear to undergo a reconstruction into proteid in the cells of the mucous membrane. Thus the animal body is able to build up proteid out of non-proteid matter, a function heretofore supposed to belong solely to plants. Little is known of "pseudopepsin" except that it acts in either alkaline or acid media, and produces "tryptophane." In intestinal digestion recent researches show that when digestion by trypsin is carried to a conclusion the entire end-product consists of crystalline bodies without any albumose or peptone. It is also shown that the secretion from Brunner's glands is capable of changing albumose and peptone very rapidly into crystalline substances (leucin, tyrosin, lysin, etc.), yet these are not found in the circulation. Löwi has kept a dog in excellent health by feeding it these crystalline bodies, so there is fair proof that the animal can build its albumin from non-proteid substances. It is shown also by Schulze that asparaginic acid is one of the substances from which plants build up their proteids, so undoubtedly the analogy of the synthesis in the plant-cells, and in the cells of the animal's digestive tract is very close.

Action of Suprarenal Extract.—By injecting 5 c.c. of a 5 per cent. solution of suprarenal extract directly into the veins of animals, F. SAMBERGER (Wien. klin. Rundsch., July 20, 1902) noticed almost immediate extreme pallor of all visible mucous membranes, and maximal dilatation of the pupils, which no longer reacted towards light. At the same time larger doses were followed by a pronounced exophthalmos. The salivary secretion increased considerably. If the animals were placed on the ground the following characteristic picture was obtained: The hair along the spinal column became erect; the tail was turned upward, and extreme ataxia of gait was evident; depending upon

the size of the dose, the muscles of the hind extremities showed fibrillary twitchings, spasm, or spastic paralysis. The breathing was often peculiar. Soon after the injection the animal breathed rapidly and noisily with open mouth and stretched-out-tongue; and sometimes the Cheyne-Stokes type could be seen. The action on the pulse was not always the same, there being at times tachycardia and at other times bradycardia, but the force was always increased. Other symptoms were vomiting, dribbling of urine and spermatorrhea. Repeated injections led to loss of weight and hypertrophy of the left ventricle. Some animals seemed to show a certain idiosyncrasy. Others got rapidly accustomed to the drug, so that there was some difficulty in determining the toxic dose. When the injections were made intraperitoneally it was found that absorption was very slow; when subcutaneously, pain was experienced, and the following day necrosis with suppuration set in.

A Case of Paracolon Infection.—The clinical picture of the case reported by E. LIBMAN (Jour. of Med. Res., June, 1902) resembled that of a cholecystitis or liver abscess. The Widal reaction soon became positive in a dilution of 1 to 250, but the paracolon bacillus was also found in the gall-bladder, blood and urine, while typhoid germs did not occur there at any time. On autopsy, healing ulcers were found in the ileum. It is natural to suspect that the case was one of ambulatory typhoid with secondary paracolon infection. The objections to the diagnosis typhoid might be: (1) That the presence of the Widal reaction depended upon the personal equation of the examiner. Against this may be said that a reaction is never regarded as positive unless agglutination is perfect. (2) That the case was an instance of a positive Widal reaction in a person not suffering from typhoid. This, however, never occurred to the author in an experience of over 1,000 cases. (3) That the patient had had typhoid at some earlier time. The fact that the reaction developed after it had been negative several days speaks against this. (4) That the jaundice accounted for the positive reaction. This also the author has never seen when the reaction is done properly. (5) That the positive Widal reaction depended in some way upon the paracolon infection. This is improbable because agglutination was so much stronger with the typhoid than with the paracolon bacillus. It is not known whether lesions occur in the intestines in paracolon infection, as this is the first fatal case reported. The possibility of a mixed infection, since the ulcers form a ready portal of entry for intestinal germs, has been considered by other authors, but no previous case seems so suggestive as this one. It is important for the practitioner to know that there do not exist the same comparatively simple conditions regarding serum reactions as for the bacillus typhosus in typhoid fever. If possible, for the present the diagnosis of paracolon infection should rest on the recovery of a bacillus of the group, preferably from the blood or urine.

Source of Sugar in Diabetes.—In severe cases of diabetes there often is considerable glycosuria, even if all saccharine and starchy food is withheld. It was formerly thought that here the sugar was derived from proteids, but it has since been shown that fats also are responsible to some extent. But A. HESSE (Zeitsch. f. klin. Med., vol. 45, Nos. 3 and 4) points out that to account for all the glucose in the urine enormous amounts of fat must undergo decomposition, and the same holds true for proteids if the amount of destroyed proteid is measured by the nitrogen in the urine. Theoretically the only explanation remaining is that the carbohydrate molecule of the proteid is split off and the rest retained. The experiments of the author seem to bear out this view, and hence the real part the proteids play in bringing about the glycosuria cannot be estimated by the nitrogen in the urine.

Fever and Respiration in Pneumonia.—Apropos of a case in which there was consolidation of two-thirds of the lung, and in which respiration remained normal and temperature was but slightly raised, M. SANGIOVANNI (Gazz. degli osped., August 3, 1902) discusses the relation between respiration and fever in pneumonic cases, and argues that rapid respiration depends not so much upon inability of the consolidated lung to perform its function properly as upon the greater or lesser virulence of the toxins elaborated, which stimulate the respiratory center as they do the thermic. In support of this argument he cites the fact that many cases of extensive consolidation run their course with but slight fever, whereas limited consolidation may give rise to extreme elevations of temperature; and that in delayed resolution of pneumonia respiratory disturbance ceases with the subsidence of fever, while consolidation still persists, and before the lung might be supposed to have regained its normal power of aeration. The author takes these facts as an indication that respiratory and febrile disturbances are in relation as to their intensity with the virulence of the toxins elaborated, and as to duration with the laws which govern the biological cycle of the pathogenic organism.

"Goundou."—This rare affection, characterized by tumors of the nasal bones, and variously called "anakhre," "gros-nez," or "hen-purge," has been classed with the diseases of tropical countries, and Manson, in his work entitled "Tropical Diseases," states that it is usually encountered in Africa and is confined exclusively to the negro race. J. M. ESPIN (Rev. de la Assoc. Méd. Far. de la Isla Cuba, Lear II, No. IX, 1902) of Cuba reports a case of this kind in a colored girl of between 10 and 11 years, a native of Haiti. The characteristic nasal condition is described as follows: A tumor about the size of a pigeon's-egg upon both nasal bones, oval, hard, resistant and immovable, giving the impression of a bony growth, adherent to the nasal bone. Skin healthy in appearance and freely movable over the tumors. Nasal passages normal. The various theories as to the etiology of the affection are reviewed by the author, who holds it to be of syphilitic origin, this in some instances being the only osseous manifestation. In Espin's case a significant history of both father and child, enlargement of the subtrochlear glands, and osseous tumors elsewhere, as well as a dactylitis, lend support to the author's theory, which ascribes "goundou" to hereditary syphilis. For lack of a better name, the lesion is termed hereditary syphilitic ostitis, the latter being believed to be generalized, modified, or limited to the nasal bones in individual cases.

Hirschsprung's Disease and Idiopathic Megacolon.—Under the name of congenital megacolon or Hirschsprung's disease, a morbid condition whose predominant and initial symptom is obstinate constipation which is evident from birth, accompanied by more or less enlargement of the abdomen, has recently found a place in the pathology of the intestines. Anatomically it is characterized by abnormal dilatation of the colon, as a whole or in part, without a causative stenosis and with what are thought to be secondary changes in the intestinal wall, such as infiltration, sclerosis, atrophy, ulceration, etc. Since the condition has been given a name, several instances of ectasis of the colon have been reported. Judging from the description of these, and from a case which came under his personal observation, G. TAROZZI (Rif. Med., August 13 and 14, 1902) deems it probable that megacolon may occur as an

idiopathic condition. In the case referred to the greatest circumference of the colon reached the enormous proportion of 40 cm.; the whole dilated portion presenting the appearance of a greatly dilated stomach, and entirely concealing all the abdominal viscera. Examination of the wall revealed marked hypertrophy, chiefly involving the muscular coats, with practically no change in the mucosa. The hypertrophy of the muscular coat, together with the histological integrity, and hence, presumably, functional integrity of the wall, are thought to indicate that the dilatation was not due to a passive yielding of the wall through congenital or acquired structural defect, or defective innervation. In the absence of a satisfactory history, and from the fact that the condition was discovered at autopsy in an imbecile, with tendency to depression and melancholia, who had been confined in an asylum for 30 years, the author interprets the ectasis as the result of dull general sensibility, with consequent retarded reflex contraction in response to the stimulus of the intestinal content, the more forceful contraction necessary to expel the accumulated fecal matter resulting in a gradual adaptation of the intestinal wall to the abnormal condition and compensatory development of muscular tissue.

Malaria and Thermic Fever.—Attention is called to the fact that these two conditions may sometimes have certain common characteristics, especially when the pernicious type of malaria is considered. I. V. LEVI and J. M. ASHER (Phil. Med. Jour., August 16, 1902) in certain cases had found the usual treatment directed against supposed heat-stroke unavailable, and were led by the appearance of a distinct malarial paroxysm in one of their patients to make a blood-examination. In this and a few other cases they found typical plasmodia. They suggest therefore the value of making immediate physical examination with especial reference to splenic enlargement and a thorough search in the blood for malarial organisms in all cases suffering from hyperpyrexia. They report having found the plasmodia in nine patients received into the hospital as cases of sunstroke, and in whom the usual therapeutic measures brought satisfactory relief.

The Nature of Primitive Grave Icterus.—A general disease of infectious nature, primitive grave icterus, according to E. SACQUÉPÉE (Arch. de Méd. expér. et d'Anat. path., July, 1902) provokes simultaneous anatomical lesions in different organs, among which the liver, kidneys and pancreas are prominent. The degree and nature of these lesions vary according to the pathological agent, associated circumstances and previous condition of the respective organs. The clinical syndrome is complete. The predominance of the hepatic and renal symptoms does not indicate that the other organs are not deeply affected. In this disease the liver does not disintegrate the bodily poisons, nor does it transform the waste products, and it manufactures its own physiological products with difficulty. The kidney eliminates little or nothing at all. The antitoxic powers of the other organs are rendered inert.

Tracheotomy in Laryngeal Diphtheria.—The necessity for prompt and successful relief in cases demanding this operation should cause every physician to feel the need of being prepared for such an emergency. A. K. GORDON (Med. Chron., June, 1902), referring to the indications for operation, says that in the stage of active discomfort, where there is restlessness and dyspnea, but no cyanosis, operation should not be immediate, and a sufficient dose of antitoxin should be given, unless the case cannot be watched, in which event it may be best to do the operation at once. It is during the stage when active discomfort is beginning to pass into that of diminished distress, which is heralded by blueness of the lips, that the operation should be done at once. The chief occasion requiring tracheotomy in the absence of cyanosis is when repeated attacks of dypsnea point to the presence of loose membrane in the trachea or larynx. A careful dissecting operation necessitates much time, the use of an anesthetic, which in itself is very dangerous, and it usually causes profuse hemorrhage, which can always be controlled better by opening the trachea and inserting the tube than by any endeavor to clamp the bleeding-points with forceps. The method preferred by the author is as follows: The child is pinned up in a sheet from feet to arms, and a sand-bag is placed under the shoulders. The head is held firmly by an assistant, so as to make the trachea as prominent as possible and to avoid any rolling from side to side. A cut is now made about an inch in length downward from the cricoid cartilage, through the skin only. A small skin-incision causes less trouble in subsequent treatment. The left forefinger is now placed upon the cricoid cartilage and an incision made through the trachea from below upward fully as long as the skin-incision. No attempt should be made to stop the hemorrhage, but the tracheal dilators are at once inserted and the child turned on its side to cough up any blood or membrane. Forceps rather than a feather should be used to extract any membrane. Large tubes are usually more comfortable than small ones because they irritate the trachea less, and it is impossible for membrane that is above the tube at the time of operation to fall down and obstruct the tube later. The inner tube requires less frequent changing and is less liable to stick. If granulations form below the tracheal wound, the best treatment is to insert the largest tube that can be used and leave it in for two or three weeks without being changed. No attempt should be made to scrape them out or to use caustics.

German Measles.—The existence of this contagious eruptive fever is now denied only by those who have never seen it and yet there is considerable confusion among the members of the medical profession in regard to the diagnosis. As the disease has such a slight mortality, the diagnosis becomes more important on account of the danger of exposure to scarlet fever, especially in institutions when the case is entered as such. R. W. MARSDEN (Med. Chron., June, 1902) believes that it is a feebly contagious disease with an incubation period of at least 12 to 14 days. The prodromata are very slight, and anything more than a mild headache and sore throat is very uncommon. Frequently the rash is the first symptom. Sneezing sometimes occurs and is an important diagnostic factor against scarlatina. Stiffness of the back of the neck, due to enlargement of the glands in the posterior cervical triangle, is a symptom upon which much stress is laid by Fonge-Smith. The rash appears as discrete pink papules, being first noticed, as a rule, about the face, and invading the circumoral ring. Its presence is rarely delayed beyond the second day, and it rapidly passes downward over the body, fading above. No part of the body is exempt from the rash. At first it resembles closely the rash of measles, but as it fades the color becomes lighter and the rash blurred, so as to be of itself indistinguishable from scarlatina. In measles the rash reaches essentially a simultaneous maximum over the whole body, but in rötheln the rash may be nearly gone upon the face when it reaches its height upon the legs. The accompanying inflammation of the pharynx and conjunctiva is fairly constant, but is of a much milder degree than in measles, and frequently is hardly noticeable. The temperature seldom goes above 101° F., even when the rash is most marked.

It is important to note that it gradually rises during the appearance of the rash upon the upper part of the body within the first two days, and disappears by lysis as it fades away in this region.

OBSTETRICS AND GYNECOLOGY.

Vaginal Hysterectomy without Forceps.—In discussing the relative merits of this method of procedure and the arguments pro and con, H. INGLESSI (La Gynéc., June, 1902) arrives at the following conclusions: (1) In hysterectomy the abdominal route is the one of choice, but that there are cases where it is advisable to employ the vaginal route; (2) in vaginal hysterectomy the operation may be done with the aid of forceps or with ligature; (3) ligation is the method of choice not only in hysterectomy for prolapse, as is admitted by the majority of Parisian surgeons, but in all vaginal hysterectomies for epitheliomata, fibromata of small size, or for salpingo-oöphoritis; (4) the technic of vaginal hysterectomy with ligatures should be based upon anatomic relations, that is to say, hemostasis should be made certain by the successive ligation of the six vascular pedicles which contain the blood supply of the uterus and its adnexa; (5) though the application of ligatures prolongs the operation a few minutes, it simplifies postoperative conditions, especially for the first two days following the operation. In the large majority of cases the application of the ligatures is very simple, and it seems that surgeons have greatly exaggerated the supposed difficulty of applying the ligatures; (6) the author bases his conclusions on a series of 23 vaginal hysterectomies performed for various diseases of the uterus and its adnexa, and has found the procedure to be perfectly practicable and easy in every instance.

Present Status of the Pessary.—This appliance, the use of which 25 years ago was the sole method for the treatment of uterine displacements, suffered a temporary neglect with the development of surgical measures. F. H. DAVENPORT (Bost. Med. and Surg. Jour., August 7, 1902) thinks that it ought not be entirely disregarded, and now that the indications for its use are better understood and are on a more scientific basis its former position is being partially regained. He believes, however, that in uncomplicated cases in young women who have not had treatment operation should be advised. Operation also is the only method which holds out prospects of a cure in cases complicated with lacerations, enlarged uterus, or much prolapse. Otherwise, where the uterus is small, where symptoms have been present but a short time, and particularly if they are associated with neurasthenia, treatment by pessary will often result in a cure. In such selected cases cure may be expected in one-half. Even in cases where a cure cannot be hoped for by pessary its temporary use is often of value in relieving symptoms and in aiding to restore the general health.

Myxedema and Eclampsia.—Fecundation in myxedematous subjects is very rarely observed, and only in the attenuated form of the disease which is either suddenly stopped in its progress or in the atrophic form. A. HERRGOTT (Annales de Gynéc., July, 1902) reports a very interesting case of pregnancy in a cretin in which there were eclamptic seizures during labor though there had been no evidence of renal disturbance of any sort prior to the onset of the labor. Though the pelvis was small, the labor was in no way unusual except that it was tedious. The child was born. The interesting point in the case was the fact that the eclampsia should come on without any warning. There were no headaches or ocular disturbances. The writer thinks that the cause of the convulsions is to be found in the myxedematous condition of the patient. Jacques Reverdin and Auguste Reverdin believe that there is a marked analogy between eclamptic seizures of this order and the tetany following the oblation of the thyroid gland. Kocher also believes there is such an analogy between postoperative painful muscular contractions and a true eclampsia. Trophic disturbance and nervous troubles are observed in individuals where the thyroid body has undergone cystic degeneration or atrophic sclerosis. Brissaud believes that any disease of the parathyroids may cause marked systemic disturbance, as he thinks these may have a different physiologic function from the thyroid proper. The author believes that the so-called thyroid myxedema is not complicated by intellectual apathy, but it is the parathyroidean myxedema, which has its manifestations in cretinoid idiocy and by cachexia. Hence in his case he believes that the parathyroids were not the cause of the convulsive attacks during parturition in his case, as they were well developed, the thyroid itself being atrophied and practically absent. If a cretin becomes pregnant, which is exceptional, and is seized in the midst of accouchement with eclampsia, then the urine will not contain albumin.

Apparatus for Urinary Fistulæ.—No matter what the type of false passage may be through which urine reaches the surface the patient is in a pitiable condition. A. HOLOWKO (C'blatt f. Gynäk., 1902, No. 30) presented the following notes on a simple means of receiving and disposing of the urine in cases of urinary fistula. He stated that such patients presented themselves frequently at a hospital in such condition that an immediate operation could not be undertaken. Such conditions are suggested by Fritsch in Veit's Handbuch der Gynäkologie, as being classed under the following: Pus processes of any kind about the genital apparatus, ordinary uncleanliness, boils and pustules, and any other condition involving uncleanliness. All such patients must first be freed from all possible contamination, and as a rule many of them require to be "fed up," so that they will accept the operation without too much shock. One obstacle against the successful accomplishment of these necessary aims is that many of these patients can not be kept in the ordinary hospital the necessary length of time, both from the standpoint of the institution and themselves. Oftentimes, with the greatest endeavor at cleanliness, baths, and various rubber machines for receiving the urine, the urine changes sufficiently in the air to render the patient and his surroundings very uncomfortable. In order to correct the evils of this situation, to receive the urine safely and carry it off, he feels that he has devised a simple means, consisting of the following: An ordinary air-cushion is provided with a rubber bottom stretching across the ordinary open space, and in the middle of this a large rubber tube is attached. In order to make this device durable he has caused it to be made of strong fabric, because pure rubber is ordinarily not suitable for it. This air-cushion is then laid on the mattress and the tube attached to it is passed through a hole in the mattress and then into a bottle, which contains the usual antiseptic fluid, preferably some solution of formaline. The one disadvantage of this apparatus is that the floor of the cushion often becomes irregular and kinked, especially around the tube, so that the urine instead of flowing off collects in it. To avoid this he has placed a metal connection tube, incorporated in the floor of the cushion, to which the rubber tube is attached in such a manner as to prevent these difficulties. He has now used this device in his private hospital and finds that the majority of patients are more satisfied with it than with any other means. As a rule they remain quite dry, and the mucous membrane of the genital organs, which usually is so much diseased by the fistula, is given

an opportunity to heal so that the operation can be done under the most favorable circumstances.

The Suprasymphyseal Incision of Phannenstiel.—Various methods of opening the abdominal cavity have been exploited within the past few years, having the common object of avoiding in part or whole the danger of hernia through the abdominal wall, which follows any operation in this field frequently enough. O. BEUTTNER of Geneva (C'blatt f. Gynäk., 1902, No. 30) offers the following notes on his experience with Phannenstiel's suprasymphyseal incision through the fascia. Disinfection of the skin in which the hair about the genital organs grows, must of course be very painstaking. He has found an admirable addition to the usual method of cleansing the skin to consist in several liberal applications of tincture of iodine. The fact that the incision passes through the skin in this very region is one of the difficulties of this operation, but may be surmounted. The skin incision itself he has planned, like Phannenstiel, through the transverse furrow which is usually present in this situation, especially in women, just above the mons veneris. He then differs from Phannenstiel in that instead of loosening the skin and subcutaneous tissue from the fascia itself, he carries his incision directly through all tissues until he reaches the fascia. The object of this slight though important modification is to avoid so far as possible the creation of a "dead space" by an undue loosening of the superficial from the deep structures. The other steps are the same as those of the author of the original operation. He shuts the peritoneal cavity in such a manner that a continuous silk suture of the peritoneum begins at the upper end and ends near the symphysis. He also uses silk in replacing the recti muscles and in suturing the fascia, and again for the skin. He aims to secure as much pressure as possible by the bandage over the region of the wound, so that no leakage from blood-vessels shall occur.

Puerperal Aphasia.—Loss of speech during the puerperium is one of the more rare complications, but its occurrence is so alarming to the family and its possibilities so important to the patient that the following notes on the subject will be of interest. M. A. MCINTYRE SINCLAIR (Lancet, July 17, 1902) offers the following conclusions on this subject. In considering the prognosis of puerperal aphasia one has to bear in mind many facts which apply equally to other forms of speech affection. The nature of the lesion, whether functional or organic, nervous or vascular, must be taken into consideration. But looking in a general way at cases one cannot help being struck with the large proportion of recoveries from a primary attack of puerperal aphasia. In some the loss of speech is of a very transitory type, in others complete or partial recovery ensues in the course of a few days, weeks, or months. He pointed out that the age of the child-bearing woman is an important factor, and the vascular conditions are mostly such as to allow of a quick resolution of a thrombus or the rapid opening up of a collateral circulation. A primary attack of puerperal aphasia, therefore, will often lend itself to a more or less favorable outlook. At the same time the liability to recurrence of the aphasia in the event of a subsequent pregnancy was emphasized. This unfortunate sequence of events took place in both of Finlayson's cases, in Bateman's case, and in the cases of Gignoux and Leven reported by Poupon. Moreover, the second or recurrent attack in each instance was of a much more serious nature than the attack recovered from in the first instance. In both of Finlayson's cases the secondary aphasia remained persistent and in one case was accompanied by permanent rigidity of the paralyzed limbs. Bateman's case, without the development of fresh symptoms, terminated fatally in six weeks. A recurrent attack of puerperal aphasia is therefore a serious matter and the prognosis is grave. Indeed, it is so bad that one must consider the question whether pregnancy ought to be allowed to recur. Poupon, in recognizing the liability to recurrence of the aphasia in a subsequent pregnancy, advises that the woman should be warned to avoid becoming enceinte in the future. The cases of Finlayson and Bateman bear further testimony to Poupon's advice. He would go even further and say that in the event of the patient again becoming enceinte the only justifiable course, according to present knowledge, is to terminate the pregnancy at the earliest possible moment. Such a procedure was actually carried out in his own case and there has so far been no recurrence of the aphasia. Much need not be said regarding the treatment of puerperal aphasia. This will depend to a great extent on the nature of the lesion and the attack must be dealt with on the same lines as guide one in the treatment of any other cerebral affections. It would be superfluous to add anything on this score. In addition to special indications for treatment it will in most cases be necessary to pay attention to the general health of the patient, and when signs of improvement manifest themselves to persevere with the reeducation of the faculty of speech. In regard to the latter point he insisted that the séances should not at first be too frequent and that care be taken not to fatigue the patient. sisted that the séances should not at first be too fre- In the event of a subsequent pregnancy he expressed the view that for purposes of prophylaxis it is strongly advisable to terminate the pregnancy at the earliest possible moment.

Chloride of Calcium for Bleeding from the Uterus.—Sometime ago Lafond-Grellety obtained excellent results in bleeding from the uterus by internal use of chloride of calcium. G. Gross of Nancy (La Sem. Méd., 1902, No. 22), acting on this suggestion, has also obtained very satisfactory outcome in four women who were suffering from bleeding from the uterus. The degree of cure was such that the women, who were very anemic and emaciated, gained flesh and strength and soon resumed their ordinary occupations. His method is briefly that the patient shall take daily a douche containing 10 parts of chloride of calcium and 200 parts of distilled water, preceded always by a cleansing douche. He at the same time considers it advisable to administer by mouth the following prescription: Chloride of calcium, 4 parts; peppermint water, 30 parts; distilled water, 90 parts; to be given in teaspoonful doses every two hours. He states that this combination of douche and internal medication are exceedingly satisfactory. The treatment may be maintained for a long time provided the kidneys are in good condition, as the chloride of calcium is readily eliminated.

PEDIATRICS.

Suppurative Arthritis Complicating Bronchopneumonia.—Very rare are suppurative articular complications in the course of bronchopneumonia, according to H. BICHAT and R. GOUPIL (Rev. mens. des Mal. de l'Enfance, August, 1902). When these occur they are due to different pathological agents, sometimes to the pneumococcus, sometimes to this associated with the streptococcus or staphylococcus and sometimes to the latter alone. The point of departure of pneumococcus infection is not always in the lung; a simple angina, a bronchitis or an otitis can be at first the only external manifestation of the infection. When the pneumococcus invades serosa other than those of the articulations, *e. g.*, meninges, pericardium, the prognosis is grave; but when there is a simple monarticular complication, the proper treatment leads invariably to a

rapid cure. Moreover, according to certain authors, the pneumococcus does not invade the joints until its virulence is attenuated. On the other hand the forms of arthritis complicated with infections of the serosa, generally terminate in septicopyemia and death. In all forms of arthritis, with or without complication, the treatment is to open wide the suppurating joints.

A Case of Achondroplasia.—As a text for furnishing a description of this disease, a case of achondroplasia is reported by J. COMBY (Arch. de Méd. des Enfants, August, 1902). This condition was first described by Parrot, in 1878, as a developmental anomaly of the skeleton, beginning in fetal life and affecting the bones that are developed in cartilage (hence the name). It is frequently confused with rickets. The characteristics of this disease are the great size of the head and the smallness of the form. The latter, which is known as nanism or dwarfishness, is due to the shortness of the lower limbs, the trunk remaining of normal size. This micromelia is characteristic and affects all the limbs in the same proportion. The thigh is shorter than the leg, and the arm is shorter than the forearm, which is the reverse of the normal relation. From the shortness of their extremities these cases have been compared by certain observers to the fox-terrier. From the ranks of the achondroplasics have been recruited the court dwarfs, for they are quite intelligent. Macrocephalus is an essential trait, closely simulating hydrocephalus. The head is globular with bosses on the frontal and parietal region. The face is large and the features are coarse. The root of the nose is flat, the tip large and rounded and the nostrils wide and gaping. The lumbar curve is exaggerated, and in women the pelvis is narrowed. Obesity is quite frequently observed. The weight is large for the size. The hand is reduced in all dimensions. The fingers are short, fleshy and nearly equal. The three middle fingers, by the wide separation of their extremities, form a trident. There is a marked curvature of the extremities. The musculature is remarkably developed. The genital organs are well developed. The lesion of achondroplasia is a dystrophy of the primordial cartilage which accompanies the first osteogenetic advance from the third to the sixteenth month. The ossification of the epiphyseal cartilage is arrested. The bones can no longer grow in length, although they increase in thickness by means of the periosteum. The bones that develop from embryonal tissue, as the clavicle, ribs, the frontal and parietal bones, are not affected in this disease. The disease is to be differentiated from rickets by the following features: In the former there is the characteristic achondroplasia, which is not present in the latter. The former begins during intra-uterine life, the latter several months after birth. In achondroplasia there is no deformity of the sternum, ribs and clavicle, which deformity is usually present in rickets. In the former disease the diaphyses are not notably curved. The cause of achondroplasia, according to Marie, is a general one, whose nature has not yet been discovered. Heredity occasionally plays a rôle. The treatment is nil.

Certain Causes of Death in Diphtheria.—A condition which has frequently been overlooked as a cause of death in diphtheria, according to M. H. BARBIER (Rev. mens. des Mal. de l'Enfance, August, 1902), is cardiac thrombosis. In the absence of an autopsy one is apt to assign the cause to toxic myocarditis, or to some lesion of the cardiac nerves or of the medulla, and all the more since these thromboses are incident during convalescence, and are often accompanied by paralytic affections. In 45 autopsies performed by the author on cases of diphtheria, he found thrombosis of the heart in 23. The seat of thrombosis is most frequently the right chamber; sometimes the thrombus occupies both right chambers, continuing up into the pulmonary artery, sometimes in the auricle or ventricle alone. Rarely are the thrombi found in the left chambers, or at least in all of them. The clots are yellowish-white, fibrinous, more or less stratified, containing but little serum, and closely adherent to the endocardium. They are evidently not formed after death, since the fatal termination is not a violent one, but occurs quietly with precursory signs. Of 19 cases examined bacteriologically, the thrombi contained the diphtheria bacillus in three, the streptococcus and diphtheria bacillus in three, the streptococcus alone in five, the staphylococcus in three, and both the streptococcus and staphylococcus in four cases. Is thrombosis of the heart to be attributed to the diphtheritic infection or to a septicemia? This question cannot be definitely answered. At any rate, on the tonsils and mucous membrane of the pharynx the fundamental action of the diphtheritic toxin is fibrinogenesis. The fact that thrombosis of the heart is an accident of convalescence, after the false membrane has disappeared from the throat, does not prove that the thrombi are not caused by the diphtheritic poison, for the pseudomembranous angina is but an incomplete and deceptive mirror of the pathological entity known as diphtheria. The diagnosis of thrombosis of the heart is a difficult one. Frequently its only manifestation is sudden death, but often it causes certain precursory signs. There is a general waxy, deathly pallor of the face and body, accompanied by coldness of the extremities. The child which has been playing on the previous days, sitting up in bed, suddenly becomes listless, lying motionless on its back. In certain cases there is a slight cyanosis of the lips and extremities. From this moment the pulse becomes small, rapid, thready, irregular and unequal. The heart-sounds are muffled, with or without modification of rhythm. That which completes the picture in certain cases is an expression of intense anxiety on the part of the child, associated with extreme agitation. There is no loss of consciousness. This condition can with difficulty be distinguished from myocarditis or bulbar paralysis. The prognosis is grave and the treatment nil. The author next discusses the effect of diphtheria on the progress of a tuberculosis, and finds that foci of latent tuberculosis are awakened parallel with the evolution of the diphtheria. Likewise the progress of a case of diphtheria is aggravated by a concomitant tuberculosis, and the cardiac accidents are more frequent and severe.

Scarlatina Hemorrhagica.—Hemorrhage into or from the mucous membranes and skin marks the extreme of severity in all infectious diseases, and when notes of instructive cases appear they are worthy of universal attention. The following case of peculiar interest is reported by V. C. DE BOINVILLE (Lancet, August 9, 1902). The patient, a boy aged four and a half years, was admitted June 21, 1902, and according to the mother's statement he fell ill June 16. The admission thus took place on the sixth day after the onset of the disease, which was characterized by the usual malaise, headache, sore throat, cough, and pain in the chest, rapidly followed by a diffuse scarlet rash. On admission this rash was still visible, but was fading and the fauces and throat generally were congested and foul. During the 24 hours following admission the temperature ranged from 101 to 102.4° F., falling gradually in the course of the next six days to 99.6° on the 27th. On the evening of this day, the twelfth from the onset of the disease, it rapidly rose to 103°, when grain doses of sulphate of quinine were administered every four hours. The temperature then again fell, reaching normal on the 1st of July. So far the case

assumed a not unusual course. The patient during this period of observation was pale and rather weak; the pulse was somewhat feeble, but there was no reason to expect anything but a favorable recovery. The cervical glands were not swollen. There was neither thus far nor subsequently any albumin or blood detected in the urine. On July 2, however (and this is the special point in the case), just as desquamation was setting in, bleeding from the anterior nares commenced. Hemorrhagic spots, a dozen or so, measuring about three mm. in diameter, appeared on the anterior aspect of the scalp. Similar spots presented themselves in the neighborhood of the knee-joints. The evening temperature rose to 99.6°, and the patient became generally feeble; in fact, showed a tendency to collapse. Perchloride of iron applied as a styptic to the nose only partially checked the hemorrhage during its actual application. On the following day an eczematous rash appeared on the buttocks, and the spots thus formed bled on the slightest friction. Tincture of hamamelis was no more successful than the former styptic in allaying the obstinate epistaxis. Iron was administered internally, and brandy was cautiously exhibited. Posturing and other methods were of no avail in checking the bleeding. It must be remarked that the total quantity of blood lost was very small. The cause of anxiety was the symptom per se, suggesting a markedly impoverished or poisoned state of the blood, not an actual loss in quantity. Desquamation, which had commenced on the hands and feet, became entirely arrested. The patient grew progressively weaker and the temperature rose higher—never above 103.2°, however, which it reached July 6. Tepid sponging was now employed. On the 7th, at 3 A. M., the thermometer recorded 103°. Tepid sponging was again resorted to, causing the temperature to fall to 98.9°. At 10.30 A. M. the patient vomited, the vomit containing a little unaltered blood. At 11 A. M. he died in a state of collapse. The interesting feature is that the hemorrhagic symptoms did not appear at the onset of the disease, as in an ordinary case of scarlatina hemorrhagica, but at a period when convalescence was to be expected. In other words, a profound toxemia set in at a time when it was to be supposed that antitoxin in the ordinary course of events would be forming and immunity becoming established. Can it be that nature, as it were, surpassed herself in her process of healing, that the antitoxins had become excessive, and that a "reactionary antitoxemia," if one may use such a term, had set in? Or can it be that, after the supposed toxins had been sufficiently eliminated to permit of a fall of temperature and partial recovery, a fresh supply of toxins hitherto combined with other material, or otherwise rendered inert, had suddenly been let loose in the blood and set up a secondary toxemia?

Adherent Pericardium of Rheumatic Origin in Children.—A case of adherent pericardium is reported by L. BAUMEL (Arch. de Méd. des Enfants, August, 1902), in which marked rheumatic antecedents were traced, and in which cardiac trouble was present from earliest infancy. The rheumatic poison caused in the child not only pleural adhesions, but also adherence of the pericardium, whose layers, as seen later, although cemented together, were easily detached. The cementing substance was soft and feebly organized. The diagnosis of this condition depends on the following signs: An extended area of cardiac dulness, an undulation and retraction of the precordium, and above all a murmur, at times superficial, feeble and blowing, coexisting with or without an aortic insufficiency and hypertrophy of the left ventricle. These murmurs, most frequently generalized, result principally from the valvular insufficiency produced by simple dilatation of the orifices, to which may or may not be added valvular lesions. Very striking is the contrast between the hypertrophy of the left ventricle, as marked out by percussion, and the feeble impulse. One is also strongly impressed, as was the author in the case reported, by the general hemorrhagic tendency, as revealed by most of the extravasated fluids. Thus the yellowish ascitic fluid contained red blood-cells, the double pleural effusion was serosanguinolent, and sanguinolent foci were discovered in the substance uniting the two layers of the pericardium. There were also vast subcutaneous ecchymoses. There is apparently some connection between the condition of the heart and the hemorrhagic diathesis.

THERAPEUTICS.

Therapeutics in Hemiplegia.—Nobody has failed to notice that no matter how complete the paralysis after an apoplectic stroke, the patient, if he survives will always regain, sometimes to a considerable degree, the power to use his disabled members. It is only the most recent research in brain pathology that has disclosed the presence of a number of reserve motor tracts by means of which will-impulses reach the cord from the cortex if one pyramidal tract is destroyed. P. LAZARUS (Zeitsch. f. klin. Med., vol. 45. Nos. 3 and 4) states that the pyramidal tract is the only direct route, but the tract of the opposite side can vicariously assume its functions, the transmission taking place through the direct pyramidal tract or through the anterior commissure of the cord. In destruction of portions of the cortex a new formation of motor centers may go on in neighboring gyri. The fact that even the division of both pyramidal tracts is not followed by a complete paralysis points to the presence of a number of other tracts, one of which runs from the cortex to the optic thalamus, then to the nucleus rubra, and in the spinal cord occupies a position ventral to the lateral pyramidal tract. The optic thalamus can convey motor impulses downward by four other distinct tracts, and of these the most pronounced runs to the corpora quadrigemina and then downward in the anterior region of the cord. This generally escapes in hemorrhages into the internal capsules. There are also a number of other connecting links between the cortex and the basal ganglia. It thus follows that every extremity is connected with both hemispheres through direct and indirect, unilateral and crossed fibres. Impulses may also reach the periphery by passing through the corpus callosum to the sound side, or where only part of the capsule is destroyed, association-fibres may bring stimuli to neighboring centers which are still connected with the cord. The therapy is evident from these anatomical relations, and consists in training the reserve tracts. For this purpose the patient receives instruction in active motion. This is sometimes rendered easier by first passing a current through the affected limb. Passive, autopassive and symmetrical motions also do good, as they facilitate the proper coordination. Even the aphasia admits of treatment, probably through vicarious activity of the surrounding brain tissue or the opposite Broca's convolution, but this treatment is often unavailing in the sensory or mixed types. The patients should begin by saying the vowels and consonants aloud, and should then be made to name objects and repeat words. Electricity in the treatment of hemiplegia is of some value, but groups of muscles rather than single ones should be faradized to imitate as much as possible coordinated movements. From faradization of the head the author has seen little good. The treatment should begin early, as soon as the sensorium is clear and the temperature normal.

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SYPHILIS AND THE BRUSSELS CONGRESS.

THE questions discussed by the recent congress held in Brussels (see MEDICAL NEWS, p. 568) concerning the prophylaxis of syphilis and venereal diseases opened so many avenues of reflection that every one of our profession who reads the report of this congress should find himself stimulated to act along some of the lines suggested.

That thirty-four countries should have sent official representatives, and that there were not only physicians present but also men in high civic and state authority is a significant fact.

It shows that the nations' leaders are alive to an important situation and are seeking from one another scientific help for a better preservation of their peoples, and that the state stands ready to follow the advice of its medical teachers and to assist them in putting their accepted theories into practice. Such mutual concert of action by national, scientific and sanitary authorities can not fail to exert a tremendous influence for the betterment of physical and social conditions in all countries.

Apart from all moral considerations, many nations have awakened to the fact that if they would save their sons from infection and their posterity from degeneration they must check the spread of venereal disease and lay a controlling hand upon prostitution.

It was clearly brought out that as an economic measure time, energy and money could be devoted to the eradication of these allied evils with the greatest possible advantage; but it was also evident that no nation or state had as yet any practical measure to recommend that would apply equally to other communities. Measures that had been found most efficacious in small cities, such as Breslau or Strasburg, were scouted as impracticable in a city like London, where a hundred thousand prostitutes would need control. Legal restrictions that had proven vastly beneficial under a partially autocratic government where the police force was expected to carry out the law, as in many German cities, were deemed wholly inapplicable to a city whose police force was as corrupt or corruptible as that of New York. Again, laws that had served well for Paris, by keeping her streets clear from prostitutes, and had partially segregated this class, were denounced by the abolition party as wholly immoral.

The reports of all physicians of large clinical experience or in sanitary posts showed how difficult it is to induce the infected to be treated if there is the slightest burden of restriction laid upon them, and how like thistle-down in its evasiveness is the prostitute class. Those who agreed that the victims of such diseases should be treated at public expense and strictly controlled by law could not suggest any system of regulatory laws which would not by their very machinery defeat their ends.

Viewed in a general way, the congress was a grand success; it has become a permanent organization; has had permanent endowments from a number of governments, and its continued efforts offer much promise of some concrete ends in the not far distant future. Syphilis and prostitution are not to disappear in a day, perhaps never; but that there is hope offered in the deliberations of such a body is undeniable.

THE LAY PRESS AND SCIENTIFIC RESEARCH.

WITH their brief preliminary announcement before us of the work of Drs. Duval and Bassett on the germ of summer complaint in children, we note their statement that they make no claim of discovery, but merely of having done confirmatory work at the Thomas Wilson Sanitarium for Children near Baltimore. It is therefore of interest to ponder the effect of such a blare of

trumpets as that in the lay journals of last week upon the medical profession itself, as distinct from its effect on the public, and to consider briefly the present stage of the world's knowledge regarding the highly important line of investigation brought so sharply to our attention by the announcement from Baltimore.

The demoralizing influence of newspaper sensations of all kinds is almost inestimable, and is particularly injurious when the lay press undertakes to invade the scientific world for the purpose of noting its progress and proclaiming its advances. But these effects have been discussed many times. Equal attention has not, however, been given to the harmful influence of the sensational press upon medical men.

The deleterious results of the incident so fresh in our memories promise to be unusually serious. The fact that the heralded "discovery" was made under the auspices of Johns Hopkins University, and was coupled with the name of a man who is honored and respected by every physician in the nation, will cause much credence to be given to the garbled reports. Naturally, from the afflicted all over the country will come a demand for the use of this latest scientific method; for the public is certain to accept the newspaper assumption that ability to cure immediately follows the success so blatantly published. The circumstances surrounding fatal cases of summer diarrhea in children are so trying that the revulsion of feeling on the part of parents and the public when physicians confess their inability to perform the wonders so widely advertised is certain to bring loss of confidence in the profession.

But the damage goes even deeper. It penetrates to the precincts of the laboratory, where the young investigator, seeing that these journalistic frenzies contain the names of men he knows to be of recognized respectability—some of them men of eminence—is in great danger of mistaking notoriety for reputation, and is sorely tempted to taste the ephemeral sensations of the former, at the risk of blighting a useful career.

That in this particular case there was collusion between the press and the medical men named, no well-informed member of our profession for a moment suspects. We state by direct authority that nothing is more regretted than that any hint of the work or its results has become known, and that every precaution was taken to prevent publicity until all results had been thoroughly gone over and verified, when the announcement would have been made through the proper scientific channels.

No great discovery in any branch of science has ever been the work of a single individual. However prone we are to applaud those who bind up the sheaves, we still must give some honor to the men who plow and sow. In science a patient worker here and there isolates a fact, the way slowly clears, and at last a Lavoisier gathers up the data, and makes a wonderful discovery. We do not rob the compiler of facts, nor the last investigator who has obtained his results in the light of preceding workers, of one iota of the fame justly his, when we ask that due credit be given to all that have contributed their minor successes to a final grand result.

No branch of bacteriology can boast of more investigators than are listed in work upon the gastro-intestinal flora. So little is actually known of the gastro-intestinal bacteria, and so much havoc arises from this tract, that every properly conducted investigation is almost sure to bring out a discovery. This is indeed the field wherein we are called upon to study not only an indigenous flora, but also the exotics, and to philosophize upon the effect of their association, their hybrids and the innumerable combinations between the varying intestinal contents and the divers toxins generated by these heterogeneous guests. Well spoken are the words of an eminent bacteriologist when he says that "two hundred years of hard study are yet to be given to the intestinal flora." When we look back we see the names of Klebs, Giegler, Chautiness, Widal, Maggiera, Ogata, Shiga. Even as early as 1883 Prior had worked and contributed to this subject. These are the pioneers; and the laboratories of France, Germany, Russia, Italy, England, Japan and our own country have not been idle in their efforts to find etiological factors of disease in bacteria of the alimentary canal.

On the diarrheas of infants we also owe much to the labors of Lesage, who has greatly advanced the work in this line, and has perhaps reached the climax of the research. Lesage is a member of Dr. Roux's laboratory staff in the *Institut Pasteur* (Paris) and *chef de clinique* in the *Hôpital Rousseau*. His work goes much further than the isolation and identification of the microbe of summer diarrheas of infants, as it includes the serum treatment of the disease. The hospital records of patients treated with this serum point to encouraging results. Lesage's work clashes in no respect with the results obtained at Baltimore, because in the preliminary note sent out by Drs. Duval and Bassett no claim for the discovery of a new microbe is made,

but simply the finding of the *bacillus dysenteriæ* (Shiga) in the stools of infants suffering with summer diarrhea. The microbe was isolated by K. Shiga in the course of his investigations upon dysentery in Kitasato's laboratory at Tokyo. Whether this bacillus has been proven with certainty to be the cause of the disease, we shall doubtless be informed when the full report is given to the medical press.

That original work has been done, and that new and useful facts have been added to our knowledge, we do not entertain the slightest doubt.

BELLEVUE, THE PROFESSION AND THE PUBLIC.

THE first official report of the trustees of Bellevue and Allied Hospitals (Harlem, Gouverneur and Fordham) is in the hands of Mayor Low. This report covers the period between February 1, when the present department was organized, and June 30 of the current year.

The trustees have placed the community under obligations to them in two particulars. In the first place, they have inaugurated administrative reforms and effected minor improvements which make for efficiency of service. They have put in order the affairs of the insane pavilion at Bellevue by providing a better medical and nursing service and by making such arrangements with the Charities Department and with the State authorities as to lessen the demands on this overcrowded division of the hospital. They have improved the nursing system in the male wards at Bellevue, have provided a more thorough training for the hospital internes; have sought and, so far as their means permitted, followed the advice of the Fire Department, the Health Department and the Board of Fire Underwriters in matters relating to the safety and the sanitary equipment of the hospital.

In the second place, the trustees have had the good sense to perceive and the public spirit to assert that, notwithstanding the improvements which have been and may yet be made, Bellevue and the other hospitals named are and will continue to be a disgrace to the city until new public hospitals are provided for central Manhattan, Harlem and the Bronx. The trustees very properly demand that the city provide a group of institutions designed according to modern ideas for the care of the sick and the suitable accommodation of the hospital attendants.

The facts which justify the demands of the trustees—we might almost say the demands of decency—can only be briefly referred to here. Bellevue was erected as an almshouse in 1817, and converted to hospital uses in 1846. The building is a fire-trap; its plumbing is unsanitary; its sleeping-rooms and dormitories for house staff and employees are overcrowded and unwholesome; there is no room for the proper examination and classification of patients on admission; food for the patients cannot be cooked or served properly; ventilation of many sections is inadequate. As a result of the poor pay and worse housing of employees, "from 40 to 50 per cent." of them "are discharged for incompetency or drunkenness every month, and their places filled by others equally unfit!" Of the old wooden dwelling-house called by courtesy Harlem Hospital, and the wretched Fordham Hospital, the less said the better. At Fordham Hospital an open lot serves as a crematory, and for lack of laundry facilities patients' washing is sent to Bellevue. It is difficult to imagine that these institutions figure at all as part of what is or ought to be a great system of public hospitals.

Public indifference is in part responsible for the toleration of Bellevue and its allies, but the medical profession of New York must shoulder its share of the blame. Notwithstanding the deplorable conditions of its purely public hospitals, New York is regarded as a fairly progressive city in matters of public health, and its hospital accommodations as a whole are not bad in comparison with those of Paris, London, Berlin or Vienna. But our best institutions are private foundations, supported to a very small extent by public funds, while our public or communal hospitals are such as we have just seen. Right here is the explanation of the conditions at Bellevue. Our best citizens are nearly all interested in hospital work, but each is concerned for the welfare of some particular private hospital doing public service. Hundreds of influential physicians and surgeons devote a large part of their lives to hospital work in Manhattan and the Bronx, but the professional opportunities of the younger and more active men are bound up with the development of hospitals which are not directly under public control and support. The bulk of our citizens find what hospital accommodations they require in these private and semiprivate institutions. In their own lives they are not touched by the conditions prevailing in our public hospitals. Bellevue and its allies are abandoned to a wretched isolation because most of us do not need them, or because we are doing what we conceive to be our duty as citizens and physicians in other directions. We have a new Presbyterian hos-

pital, a new St. Luke's, a new St. Vincent's, a new Mt. Sinai, and an old—Bellevue! Our citizens are glorified, and our city is disgraced.

The trustees of Bellevue and Allied Hospitals have done their duty. Mayor Low has expressed his views in regard to the contagious disease hospitals in such a manner as to convince us that he cannot be blind to this other public need. An enlightened executive should have the support of an enlightened medical profession and the sanction of a conscientious and public-spirited citizenship. A new hospital for Harlem and one for the Bronx have already been authorized. A new Bellevue is the greater need, and the authorization is yet lacking. It lies with the medical profession of the city, through its established and powerful organizations, to create and sustain a popular sentiment which will make Bellevue a credit instead of a disgrace to New York.

Will the profession do its duty?

RADIAL ACTIVITY OF MATTER.

THE newly discovered property of matter, radial activity, which has been described by M. Henri Becquerel, opens a new field for study in physiological chemistry. In a most readable article by Prof. Duncan published in the August number of Harper's Magazine, a few of the physiological and chemical actions of these Becquerel rays are mentioned.

They will change bichlorid of mercury into calomel, yellow phosphorus into red and oxygen into ozone. They spontaneously render the air a conductor of electricity, so that electrically charged bodies are discharged upon the approach of material possessing this radial activity. A pinch of radium chlorid, which possesses this new property to a marked degree, was sealed in a test-tube by Prof. Curie, who then placed it in a cardboard box, which he fastened to his coat-sleeve. When the box had been in that position for an hour and a half intense inflammation of the arm was found to have set in. This was followed by a suppurating wound which required three months to heal.

Any substance placed near radium chlorid acquires radial activity. This is so marked that it is inadvisable to keep radium chlorid in the laboratory. Even the clothes and body may become so charged with Becquerel rays that experiments cannot be undertaken until the power has been expended. Sometimes this requires several days. Innumerable questions must arise in the mind of the scientist which may lead to endless experiments with radial activity and possibly give to the armamentarium of the physician a strength never before realized. The bacteriologist, the physiologist and the therapeutist, as well as the chemist, have here a new inviting field for labor.

That there is such a property of matter as radial activity, and that these light-rays are not, like phosphorescence, acquired by exposure to sunlight, but denote an active property of matter itself, is proven beyond a doubt. Becquerel rays are found to be composed of two kinds of rays existing together. One set of rays can be deflected by a magnet, being therein similar to cathode rays, while the other set, being undeviable, resemble X-rays. The significance of this can only be conjectured.

The distinguished French ophthalmologist, Professor Javal, who is himself blind as the result of chronic glaucoma, has recently been experimenting with certain of these radiant metals, with the idea of their possible use for diagnostic purposes in eye-diseases, as well as for enabling blind persons to see certain objects. When the ocular media are obscure it is sometimes very important to know whether the nerve-endings in the retina still possess the power of perception. The radiations from these metals can penetrate opacities of the lens and produce sensations of light in the retina. Moreover, in cases where there are also disturbances in the vitreous body these radiations penetrate to the retina and produce their effect. Dr. Javal's work may prove of more practical significance than has been thought, and careful following of the subject may give another auxiliary to ophthalmology.

Another generation may see as wonderful advances in medicine and surgery as the last has seen, and much of this progress may be due to the discovery of radial activity.

ECHOES AND NEWS.

NEW YORK.

Public School Inspection.—As a result of the unusually rigid medical examination to which pupils of the public schools are being subjected this year, almost 2,000 children have already been excluded, although the work of inspection is barely more than half through. For five years there has been a scheme of medical examination in the schools, but at the beginning of the present school year President Lederle of the Board of Health made up his mind that it was not thorough. He had a large number of school medical examiners on his rolls at $30 a month each. He discharged two-thirds of them and raised the salaries of the remaining third to $100 a month. Each school medical examiner has three schools now to attend to. He goes to the first

school at 9 o'clock in the morning, inquires of the principal whether there are any cases requiring his attention, and if there are, attends to them. He does the same with the second school, but on arriving at the third school on his list makes a tour of each room and examines every pupil in it. The next day one of the other schools is examined in the same way and the third day the other one gets this thorough attention. The result of this system is that every public school pupil in the city of New York is examined every third day by a physician employed by the Board of Health. That before half the pupils have been examined almost 2,000 children should have been found suffering from one or more diseases shows, in the opinion of Dr. Lederle, the necessity for the stringent measures he has taken. Under the old system less than 10 per cent. of that number would have been found by this time, and most of them might have gone through the school year spreading their afflictions without being discovered.

Mayor Low on the City's Health.—During the first six months of the year, according to the Mayor, with a force of inspectors smaller than a year ago, the Board of Health made 51,500 inspections of plumbing, against 48,000 last year. Of condemned food, 6,500,000 pounds have been destroyed in 1902, as compared with 3,500,000 pounds during the same period of 1901. The fines collected in the first six months of this year for attempting to sell impure milk have been $6,500, as compared with $2,500 a year ago. The epidemiological side of the board's work has not been neglected. As many as 16,000 cultures, so called, have been examined during the last six months, and the system of culture collection and report thereon has been reorganized and extended all over the city, so that physicians obtain the information they need much more promptly than heretofore. The department has also treated directly with antitoxin 411 cases of diphtheria in the poorer tenement-house districts, and these show a very low mortality. The vaccinating corps performed 700,000 vaccinations in the first six months of this year, as against 300,000 in the spring of 1901. As a result the threatened epidemic was held in check. Perhaps the most important part of the Mayor's recent "Talk" on this subject relates to the city's need of more hospitals for infectious diseases. He says: "London has 6,500 beds for the treatment of infectious disease, or one bed for each 1,000 of population. The city of New York has only 750 such beds, or one for each 5,000 of population. London is engaged in adding 1,500 beds to its present supply, and New York, through an issue of bonds authorized this year, is adding 225 beds. In London this year, out of nearly 20,000 cases of infectious diseases, nearly 88 per cent. were treated in hospitals. In New York only 9.5 per cent. were so treated. Modern sanitary science demands the increasing treatment of infectious diseases in hospitals, and New York can no longer afford to neglect this great element of safety. Until bonds were issued for the purpose this year there was absolutely no provision made either for disinfecting plants or for the treatment of infectious dsease in the three boroughs of the Bronx, Queens and Richmond, having togetner a population of 500,000 people." The work of Dr. Lederle in improving the condition of North Brother Island receives grateful recognition.

PHILADELPHIA.

To Improve Meat Products.—The Philadelphia Commercial Exchange has recently established a bureau of meat inspection within its membership, an official meat inspector and a committee on provision inspection having been appointed. Inspection of all meats consigned to members of the exchange will be made.

Dr. Marshall to Relinquish Deanship.—It is reported that Dr. John Marshall, dean of the medical faculty of the University of Pennsylvania, will this fall decline reelection to that office. Dr. Marshall succeeded Dr. James Tyson eight years ago. He will hereafter devote his time to instruction in chemistry and toxicology.

The Typhoid Situation.—For the week ending September 13 there was one more case and five more deaths from this disease than during the preceding week. A report to the Board of Health shows that 34 cases now under treatment here were contracted outside the city, 15 at Atlantic City, 12 in other cities and seven in the country.

Adulteration of Milk in Pennsylvania.—Of 38 samples of milk recently taken in York by agents of the State Dairy and Food Department, 50 per cent. were found to be either adulterated or preserved with boracic acid or formaldehyd. At Easton and Allentown 56 samples were taken, and sufficient evidence was obtained from analyses to justify suits against 10 dealers.

American Pharmaceutical Association.—This association held its 50th annual meeting at Philadelphia September 8-15, both the scientific and social programs being of an order befitting the semicentennial of the society. Among the general subjects discussed were the reduction of the tax on alcohol, "cut-rate" prices on proprietary medicines, and the memorial to the late William Proctor, Jr., of Philadelphia, the "Father of American Pharmacy," who died in 1874. Of especial interest was the historical exhibit of drugs, fixtures, chemicals, books, etc., illustrating the advances of 50 years in the sciences related to pharmacy.

Consumptives at Philadelphia Hospital.—Somewhat sensational reports have lately been circulated regarding the contraction of tuberculosis by resident physicians and nurses of the Philadelphia Hospital. This is claimed to be due to improper facilities for the isolation of such cases. Whatever truth there may be in this statement, there is no question as to the urgent necessity of a separate building for the more than 400 tuberculous patients now in the hospital. An appropriation of $80,000 is now available, but delay in selecting a site for the building has retarded its erection. One of the directors favors keeping recoverable patients at White Haven at the expense of the city by coöperating with the Free Hospital for poor consumptives.

The Value of Diphtheria-Antitoxin.—At the opening meeting of the County Medical Society, September 10, Dr. M. H. Fussell read a paper on this subject. Such a paper, he said, was not superfluous, seeing that a physician of this city with a large practice and in charge of a hospital ward stated recently that antitoxin was a failure and that within 10 years all antitoxin syringes would be thrown into ash-barrels. There has been no change in the type of the disease since antitoxin was first employed, and the lowered mortality from diphtheria must be due to its use. The apparently high mortality in some cities can be explained by the fact that many cases are not reported, to prevent placarding, and that the antitoxin has been used late in the disease. Dr. Fussell gave his personal experience gained during 18 years' practice, detailing some cases as ordinarily treated before the advent of antitoxin and con-

trasting them with cases now treated by that method. Formerly every case that began with laryngitis resulted in death. In all cases it was simply a question of the amount of poison received and the resistance of the individual. Since the use of antitoxin he has lost but one case, that patient dying in eight hours after being seen. Every case of laryngitis has recovered. All cases are examined bacteriologically, hence antitoxin does not get credit for curing follicular tonsillitis. A case was detailed to illustrate the error of giving one dose and not repeating it once or twice if no improvement follows, and also to show the value of giving antitoxin late in the disease. If the following rules were followed by all, the mortality would be about nil: (1) Always make cultures from the throat; (2) in doubtful cases give antitoxin at once; (3) in true cases give 2,000 units and repeat in six hours if there is no improvement, and give 2,000 units every 12 hours thereafter until relief is obtained. Dr. G. E. de Schweinitz stated that the management of diphtheria of the conjunctiva had been entirely revolutionized by the use of antitoxin. All cases can now be saved if recognized early. If antitoxin is not employed some lesion of the eye—blindness in many instances—will remain. In these cases it is little short of criminal not to administer antitoxin.

CHICAGO.

Delays are Dangerous.—The Health Commissioner believes that as parents are compelled by law to send their children to school, it is the duty of the Board of Education to provide pure water for the children. The idea of individual children carrying bottles of sterilized or distilled water to the classroom! It is a demonstrated fact that typhoid fever is more prevalent in Chicago than it ever was except in the epidemic years of 1890-'91-'92. There were 194 deaths from typhoid in August, which is the highest August record ever made by the disease in the city's history. In the first six days of September there were 48 typhoid deaths; in the first six days of August, 22, an increase of nearly 120 per cent. The Board of Education should face these alarming conditions squarely and at once. Delay is dangerous. The situation demands immediate action.

Increase of Typhoid Fever.—Since August 2 there have been 249 deaths in the city from typhoid fever. The disease is spreading to every quarter, and the water-supply from all sources is so frequently and generally polluted that the Health Department deems it proper to refrain from characterizing any supply as "good" on any given day. There is nothing mysterious about this increase of typhoid. It is due to the polluted water-supply. What is puzzling is the fact that the supply should be so polluted during unusually dry weather. Nearly eight years' continuous observation of the water-supply and the conditions affecting it, during which upward of 160,000 chemic and bacteriologic examinations have been made by acknowledged experts, had resulted in the formulation of a belief in the laboratory that rainfall was the most potent factor in the pollution of the city water. Heretofore in dry weather the water was uniformly "good;" heretofore a rainfall of three-quarters of an inch in 24 hours—a quantity sufficient to flush out the sewers—was uniformly followed by pollution of the water. And such pollution was as uniformly followed by an immediate increase in the deaths from intestinal diseases, and later by an increase of typhoid—the former culminating, unless there was an intercurrent pollution, in about two weeks and the latter in about five weeks. For years charts have been constructed in the department showing the relation of these three factors—rainfall, water-pollution, increased death-rates from diseases caused by impure water. They have followed each other, up to the present time, with what the London Lancet has styled "almost mathematical precision." But during August, 1902, and thus far in the present month there has been no sewer-hushing rainfall, the greatest amount in 24 hours having been only 0.57 of an inch (August 13), and the total for the whole month being little more than one-half the average quantity during the last 53 years. Yet the water, on an average, has been worse than during any August since these observations were begun.

GENERAL.

Vaccination Before Marriage.—A Norwegian law requires the prospective bride and groom to show evidence of vaccination before marriage.

Scientific Expedition to Africa.—The Liverpool School of Tropical Medicine will this year send its eighth expedition to Africa for the purpose of studying the presence of trypanosoma in the human blood.

Massage by the Blind.—A Leipsic physician expresses the opinion that on account of their delicate sense of touch blind persons are specially qualified for practising massage. In Japan this is done very largely by the blind.

The Huxley Lecture.—Prof. W. H. Welch of Johns Hopkins sailed on the 19th instant for England, where he goes by invitation to deliver the Huxley lecture. The lecture will be given October 1 at Charing Cross Hospital, and Prof. Welch will return during that month to his duties in the University.

Prof. Loeb in San Francisco.—Dr. Jacques Loeb, Professor of Physiology at the University of Chicago, has gone to San Francisco to carry on his investigations in relation to the chemistry of life. He is the guest of President Wheeler of the University of California, and, although no official announcement has been made, it is believed that the eminent scientist will be induced to accept a chair at Berkeley and make his home in California.

Statistics of Cancer in Germany.—The German commission which, under the direction of Leyden, commenced in October, 1900, its investigation of the prevalence of cancer in Germany has recently issued its first report. From this it appears that 4,430 men and 7,714 women have been treated for that disease in the German empire; the proportion being 245 cases to each million inhabitants. Cancer of the digestive tract represents 70 per cent. of the total number of cases.

They Spread Smallpox.—Health Officer Friederich of Cleveland, O., has issued an order that in all families where smallpox is discovered, and where there is a dog or a cat, the animal must be killed. Dr. Friederich has contended for some time that cats and dogs are the most frequent distributors of smallpox that can be found. The hair of either animal may become filled with the contagion, and then a child may play with the pet. The result is another new case of smallpox. If the dog is permitted to run at large the danger is more than doubled.

Consumption of Sugar.—The people of the United States now consume eight times as much sugar per capita as they did in the first quarter of the last century, four times as much as the average during the decade ending with 1850, and twice as much as they did in any year prior to 1870. Increase in the con-

sumption of sugar is not confined to the people of the United States, but seems to have been equally rapid in other parts of the world, judging from the figures of total production. The consumption per capita of sugar in the United States is greater than that of any other country except the United Kingdom. In England it ranges from 85 to 91 pounds, against from 60 to 68 pounds here, the consumption for 1900 in the United Kingdom having been 91.6 pounds.

The Sultan's Hospital.—"The finest hospital I ever saw is owned by the Sultan of Turkey, and the way it is conducted is a revelation as to the humanitarianism of the Sultan, for whom it speaks well," said Dr. Nicholas Senn of Chicago, who has just returned from a four months' European trip. It is a private institution, run entirely at the expense of the Sultan, and is principally for women and children. No payment is accepted by the hospital for treatment of any cases which come into its care. There are even 16 beds for foreigners and strangers. All a stranger in Constantinople has to do if he is ill is to get a note to the hospital authorities from the minister of the government to which he claims allegiance, and the hospital gladly does the rest. As companions on his round of visits to the hospitals of many countries, Dr. Senn had Dr. Wylie of Paxton, and Dr. Finch of Champaign, Ill. The primary object of Dr. Senn's trip to Europe was to attend the international Red Cross conference at St. Petersburg.

Death from Laughing-Gas.—Deaths from gas administered to persons who are to have teeth extracted have become so rare in this country that a fatal case in a dentist's chair in Paris last week excited a great deal of interest among dental surgeons. While the cable despatches telling of the death of a young American woman gave no particulars, dentists here say that it was due to asphyxia, although they are not prepared to blame the French dentist until they have heard the facts. There have been only about a dozen deaths from laughing-gas in this city since gas was first administered in 1844. In recent years there have no deaths. Dr. C. S. McNeille, head of the Colton Dental Association, in Cooper Union, which has a record of 216,000 cases since 1864, says that the association has never lost a case, and is confident that it can successfully give gas without fatal results in any case.

Maus on Cholera in the Philippines.—Lieutenant-Colonel M. P. Maus, of the Medical Department, who has lately been relieved as Commissioner of Public Health for the Division of the Philippines, arrived in San Francisco last week. He has had entire charge of the fight against the cholera epidemic in the Philippines since its outbreak in March of this year. Dr. Maus is very hopeful of the situation and thinks that the worst is over. He made this statement: "Just before I left Manila, on August 7, the city's daily death-rate from cholera was about 25. The cases were found almost wholly among the poorer classes of the natives and in what is known as the Nipa district. The contagion never reaches the Americans except as a result of indiscretion on the part of the victims. The disease is taken in through the mouth, generally in food or water. Cholera was brought to the Philippines from Hongkong by ships. I had charge of the first two cases reported, and traced their origin to some vegetables that had been thrown overboard from a Hongkong steamer and picked up and eaten by natives. I instituted the most rigorous measures to prevent an epidemic, but owing to the attitude of the natives this was impossible. They are pretty much all fatalists, and disregard sanitary regulations when they can do so without danger of arrest. Sterilized water was supplied to every family in the city. They would sneak through the quarantine lines at every opportunity and eat all kinds of food. While I was there about 1,700 cases were reported, of which 90 per cent. were fatal. The epidemic had spread all over the archipelago. Had the Americans not been there the results would have been as direful as in 1882 and 1888. We fought the disease as hard as we could, and could we have obtained the co-operation of the Filipinos themselves there never would have been an epidemic."

CORRESPONDENCE.

TRANSACTIONS OF FOREIGN SOCIETIES.

British.

HEMORRHAGE DURING PREGNANCY—REPORT OF THE COMMITTEE OF THE OTOLOGICAL SOCIETY OF THE UNITED KINGDOM ON RECOMMENDATIONS WITH REGARD TO COMPULSARY EXAMINATION OF THE HEARING IN SCHOOL CHILDREN—HEART DISEASE IN CHILDREN—TENDON-TRANSPLANTATION IN INFANTILE PARALYSIS OF THE LOWER EXTREMITY—ON THE PERIPHERAL THEORY OF NERVE-REGENERATION WITH SPECIAL REFERENCE TO PERIPHERAL NEURITIS.

The transactions of the British Societies have been up to their standard of scientific research. The following notes are taken from the more important of the meetings:

R. JARDINE of Glasgow, at the Edinburgh Obstetrical Society, July 9, 1902, opened a discussion on "Hemorrhage During the Later Months of Pregnancy and Early Stages of Labor," as follows: Unavoidable hemorrhage arose from the separation of an abnormally situated placenta; that was, one entirely or partly attached below the retraction-ring. As soon as dilatation began separation must occur, and this separation meant the opening up of sinuses and consequent hemorrhage. In the central variety the entire placenta must separate, and very severe hemorrhage result; in the lateral variety the greater part of the placenta must separate, and severe hemorrhage also occur; while in the marginal variety, when only a small portion was below Bandl's ring, the bleeding would not be great. This last was probably more frequent than was supposed, and was the cause of slight hemorrhages in the early stages of labor. In the treatment of unavoidable hemorrhage the viability of the fetus must be considered. If not viable, palliative measures should be tried, unless the hemorrhage was very severe. Absolute rest in bed, with perhaps an opiate, and attention to the bowels and diet were all that might be required. Styptics were of no use. The patient and friends must be warned to give notice at once of any recurrence of bleeding. Unfortunately, many women were so accustomed to large losses of blood that they were not easily alarmed, and they might delay until it was too late. If the fetus was viable and the hemorrhage severe, active treatment must be carried out. The most efficient way to stop the bleeding was plugging. If the os was but slightly or not at all dilated, plugging should be resorted to if possible—insertion of one plug into the os, and then packing of the vagina till it was completely filled. If the os was dilated sufficiently, a Barnes or a Champetier de Ribes bag might be used; but if the os was dilated sufficiently to permit the entrance of one of these, then it would permit the performance of bipolar version, in a head or transverse case, so as to bring a leg down into the vagina. In a

breech-presentation one leg should be brought down as soon as possible. The plug should be removed in a few hours, and then the os was usually found dilated to permit of further treatment. Once a leg was down, gentle traction would control the hemorrhage. The labor should not be hastened after this, as forcible traction of the child through an os not completely dilated would produce laceration of the cervix, with very serious hemorrhage, owing to its special vascularity in this condition. If the os was quite dilated, delivery should be effected as quickly as possible by version or by forceps. If the placenta was central, the hand must be passed through or round it. Stripping off the placenta was useful, as it allowed dilatation of the os to occur more easily. In the marginal placenta previa the membranes might be punctured and the uterus stimulated by friction till the placenta was pressed on by the presenting part.

After the birth of the child, if the placenta did not come away at once it should be removed. If postpartum hemorrhage occurred, ergotin should be given hypodermically and pressure applied bimanually. Hot-water douching was of questionable advantage, as it might wash away the clots out of the sinuses and so promote hemorrhage. Dr. Jardine had of late been using 30 grains of suprarenal gland to the pint for douching, and it seemed to have a good effect. But if there was any tendency to postpartum hemorrhage he invariably plugged the uterine cavity, the cervix and the vagina. Reference was then made to the operation of Cæsarean section in placenta previa as first proposed by Lawson Tait. Eight cases had thus been treated by Cæsarean section or Porro's operation; five mothers and six children were saved. Two cases were hopeless before operation. But even omitting these two, the resulting mortality was much higher than in cases treated by other methods, where there was a mortality of about 1 in 20. The treatment by abdominal section seems unjustifiable. Accidental hemorrhage might be external or internal. In the external, if the uterine contractions were active then the membranes should be ruptured and the uterus massaged or a tight binder applied. If the bleeding continued, the uterus should be emptied as soon as possible by turning or by forceps. Dr. Jardine referred to the Rotunda method of plugging and the reasons adduced for its use, but he could not agree with their theory. In these cases the uterine wall was not in a normal condition. If strong contractions were occurring, plugging might be used, but if there were no contractions there would be great risk in converting an external into an internal hemorrhage. He had seen one case in which this happened with fatal result. If the hemorrhage was severe, the uterus should be emptied as quickly as possible, the os being dilated by hand or by a Champetier de Ribes bag. As soon as the child was born the hand should be inserted into the uterus and the placenta and clots removed. If postpartum hemorrhage was occurring, ergotin should be given and the uterus plugged. The plug could be wrung out of suprarenal extract solution. A saline infusion should be given if much blood had been lost, or if there had been much shock. Concealed internal hemorrhage was the most fatal of all forms. Rupturing the membranes would only make more room for blood to be poured out, and delivery by accouchement forcé was not very hopeful if the hemorrhage was severe. In Dr. Jardine's experience of many cases such treatment was disastrous. He favored removal of the uterus by Porro's operation. A helpful symptom in diagnosing this condition was that the patient complained of severe continuous pain in the abdomen. If the condition was recognized early the membranes should be ruptured before there was sufficient bleeding to cause collapse. Another source of hemorrhage in the early stages of labor might be a commencing spontaneous rupture of the uterus, but it could not be diagnosed until the rupture had occurred, when abdominal section and removal of the uterus should be carried out.

On the 14th of last April, the Otological Society of the United Kingdom appointed a committee to draw up recommendations with regard to the compulsory examination of the hearing of school children. At the meeting of the society held in Dublin, May 31, the following report of this committee was unanimously adopted: "The committee appointed to consider the desirability of securing for the children of the poorer classes systematic detection and treatment of ear-disease, and to report at an early date to the society, having carefully considered the reports submitted and the experiences recorded at the special meeting held April 14, have arrived at the following conclusions: (1) That there exists amongst the children of the poorer classes a very large amount of ear-disease which is preventable and curable; (2) that it is not sufficiently recognized that ear-disease in childhood tends to a considerable loss of hearing, health and life, that it militates against a child's education, and that later on the subjects of it are seriously hampered in their life's work, and often incapacitated for the services of the state; (3) that ear-disease in children is often not treated, partly owing to neglect, partly to ignorance and to belief in popular fallacies, but more especially to an inability on the part of parents and teachers to detect it; (4) that any scheme having for its object the security of children against the consequences of ear-disease, to be efficient, must provide for thorough and systematic examination and treatment; and (5) lastly, having regard to the national importance of the subject, they recommend that a memorial embodying this report be submitted to the President of the Committee of the Council on Education."

A. E. SANSOM, at the Society for the Study of Disease in Children, June 21, 1902, presented an interesting paper on "Heart-Disease in Children." He said that the affections of the organ were chiefly but not always rheumatic, and were infrequently associated with painful and diseased joints. The chief groups of them were: (1) The temporarily swollen and enlarged heart of rheumatism; (2) the heart of rheumatic pericarditis; (3) the heart of rheumatic endocarditis with resulting valvular disease, and (4) the heart of slow and insidious rheumatic endocarditis inducing mitral stenosis. Dr. E. Cautley showed a specimen of atresia of the conus pulmonalis and patency of the septum ventriculorum. The child died at twelve months of age from cardiac failure during an attack of dyspnea. Dr. Cautley thought that cases of congenital heart-disease should be divided into two groups—those due to developmental error and those due to fetal endocarditis. Occasionally the two factors might be coexistent. He regarded congenital syphilis as the first cause of developmental error. Dr. Theodore Fisher of Bristol regarded pericarditis as the most striking feature of heart-disease in children. Dilatation, slight in amount, occurring in rheumatism was not serious. He thought that myocarditis and pericarditis showed that the whole heart was poisoned. He agreed with Dr. Cautley's classification of congenital heart-disease. A patent foramen ovale was very common and could be found in one-fourth of adult necropsies if it were looked for.

W. P. MONTGOMERY read a paper on "The Results of Tendon-Transplantation in Twenty-five Cases of Infantile Paralysis of the Lower Extremities." The cases were classified into various groups, and the results of the various methods employed were given. The work of reeducation was often very slow, but the

final state was good. A number of cases were shown in the wards prior to the meeting. Dr. C. N. Gwynne of Sheffield read the notes of a case of infantile paralysis of the leg which he had treated by excision of the knee, the ankle and the tarsal joints. The result was most satisfactory, and the boy could walk well—with a stiff leg, but without any evidence of deformity beyond some shortening. R. Clement Lucas spoke of the old-fashioned way of treating such cases by tenotomy, with results which were not encouraging, and of the great advance of the present methods. He had himself done more in excising the bone in extreme cases of deformity than had been done in the present series.

DR. R. A. FLEMING read a paper entitled, "On the Peripheral Theory of Nerve-Regeneration, with Special Reference to Peripheral Neuritis." He said that there were two theories of the nerve-regeneration which took place when a peripheral nerve was divided. According to the central theory the peripheral end could only regenerate by the central axis cylinders growing down into it; while according to the peripheral theory regeneration could and did occur in the peripheral end even when reunion of the two ends never occurred. The central theory was the old theory, almost universally held until quite recently. The peripheral theory of regeneration was by no means of recent inception, but the work of Kennedy, and more recently of Mr. C. A. Ballance and Dr. Purves Stewart, had done much to direct attention to it in this country. Dr. Fleming demonstrated "neuroblastic" regeneration in the peripheral ends of rabbits' nerves at various periods after complete division, and referred to the value of Stroebe's method of staining axis cylinders. He adhered to the belief that the central axis cylinders were not purely passive agents in the work of regeneration of a nerve after division, and stated various facts which appeared to him to indicate the probability of this combination of the central and peripheral theories being correct. The evidence obtained from a study of a number of amputation neuromata appeared to support this view. He then referred to four cases of peripheral alcoholic neuritis, in all of which regeneration had occurred in some of the affected nerves. The fact that the neurilemma nuclei appeared to have a tropic toward the portion of axis cylinder between the two nodes of Ranvier suggested that the neurilemma cells might act as neuroblasts even without considering the much stronger and more logical evidence from embryology. This tropic function of neurilemma Dr. Fleming described some years ago. "Neuroblastic" regeneration was probably not an obvious process in normal nerves. For the truth of this statement Dr. Fleming deduced evidence from the examination of nerves in a small number of cases presumably healthy so far as the nervous system was concerned. There was no regeneration similar to that seen in the four cases of peripheral neuritis described. "Neuroblastic" regeneration was nature's attempt at repairing the damaged nerve-fibers in peripheral neuritis, and it seemed to be the only possible explanation of recovery in a severe case of the disease in which long areas of nerve-fibers had suffered. Dr. Fleming suggested that the peripheral axis cylinders were probably of epiblastic origin.

BYWAYS OF MEDICAL LITERATURE.—VIII.

FAILURES OF VEGETARIANISM.

TREATING of a subject of hygienic interest, Eustace H. Miles, M.A., has written a book with the title, "Failures of Vegetarianism" (London: Swann, Sonnenschein & Co.), in which there is a very commendable spirit displayed as regards the attitude of mind towards a vegetable diet that may ultimately make vegetarianism a valuable adjunct to other hygienic measures. There is a candid admission at once that the allowance of milk, butter and eggs practically makes a diet non-vegetarian in the strict sense of the term, and that consequently a better name for the system than vegetarianism would be the use of simpler foods. Mr. Miles pleads for more observations with regard to the effect of such simplicity of diet, and strikes the keynote of all true scientific progress when he says that observation and not theorizing is required.

A characteristic incident is quoted which those who have come much in contact with the antis will, we are sure, thoroughly appreciate. One good woman, whose faith in vegetarianism was only surpassed by her zeal in propagating her favorite doctrine, fell in with an inoffensive old gentleman who had permitted himself all his life a moderate indulgence in meat. The error of his ways was vigorously and insistently pointed out to him by his chance acquaintance, who incidentally let fall that she was an antivivisectionist "dyed in the wool." When he finally escaped, the old gentleman remarked, "Really, if she loves animals as much as she pretends to, I am surprised she did not have more compassion for an old goose like me, for that was what she gave me every reason to think she considered me."

SOCIAL BACTERIA IN ECONOMIC MICROBES, WHOLESOME AND NOXIOUS.

A STUDY IN SMALLS.

Under the above caption Prof. Edward Atkinson of Boston, probably our greatest living statistician, has an extremely interesting article in the Popular Science Monthly for August. Notwithstanding its very medically scientific title, the article has nothing to do with bacteriology or microbiology in the ordinary sense of these terms. Prof. Atkinson discusses the various wastes in life, from the preparation and distribution of food-material to the consumption of alcohol and the money spent by many nations for military preparations. Incidentally he compares the amount of money spent on schools and the working up of various manufactured materials in the iron, textile and leather industries. For those who are interested in statistics of the ordinary things of life in this country Mr. Atkinson's paper will prove a veritable mine of detailed and reliable information.

To physicians one of the most interesting features of the article will perhaps be found in a foot-note to his paragraphs on the consumption of spirits in this country. There are said to be 16,000,000 gallons of alcohol used in the arts. With regard to this Prof. Atkinson says: "There is reason to believe that more than half the quantity of spirits said to be used in the arts is consumed in making beverages, temperance drinks and quack or proprietary medicines, for which a very high price is paid by ignorant or uninformed persons, many of whom are totally unaware of the fact that they are drinking intoxicating liquor."

He then quotes from the official reports of the Massachusetts Board of Health certain statistics with regard to the amount of alcohol by volume contained in such various popular proprietary remedies as Ayer's Sarsaparilla, Hood's Sarsaparilla, Liebig Co.'s Cocoa Beef Tonic, Parker's Beef Tonic (purely vegetable, recommended for inebriates), Boker's Stomach Bitters and Warner's Safe Tonic Bitters.

Ordinary whisky, as dispensed in saloons is scarcely stronger in alcoholic content than are most of these so-called remedies, and especially some of them that are recommended for the treatment of inebriates and the alcoholic habit. As the remedies are prescribed to be taken in tablespoonful or even larger doses three times

a day, it can easily be understood why they give a delusive sense of well-being and increase the appetite of those who take them. It is very probable that at the present moment the temperance societies of this country could do nothing better calculated to advance the cause of temperance than to undertake a vigorous crusade against the use of such remedies. In woman particularly the origin of the craving for liquor is often a mystery to her family and friends. Undoubtedly the taste for spirits not infrequently begins with indulgence in these so-called "tonic" remedies, which have done and are doing an incalculable amount of harm.

RELIGION AND NEUROLOGY.

It was once said by a well-known literary man that Prof. William James of Harvard wrote books on psychology that read like novels, while his brother Henry James, the novelist, sometimes wrote novels that read like treatises in psychology. Prof. James's recent book, "Varieties of Religious Experience," from which we quoted in the last number of the Byways, has many things of special interest to medical men, because it supplies material for answers to certain intrusive doubts in regard to the spiritual significance of many things in life that seem no more than mere physical phenomena.

The opening chapter, on "Religion and Neurology"—announced as a lecture at Edinburgh under the vivacious title "Is Religion a Nervous Disease?"—deals with the medical materialism which would explain away the intenser spiritual experiences as due to bodily disturbances. "Medical materialism finishes up St. Paul by calling his vision on the road to Damascus a discharging lesion of the occipital cortex, he being an epileptic. It snuffs out St. Theresa as an hysteric, Saint Francis of Assisi as an hereditary degenerate. George Fox's discontent with the shams of his age, and his pining for spiritual veracity, it treats as a symptom of a disordered colon. Carlyle's organ-tones of misery it accounts for by gastroduodenal catarrh." To which Mr. James answers that by the first principle of physiological psychology "there is not a single one of our states of mind, high or low, healthy or morbid, that has not some organic process as its condition. If we only knew the facts intimately enough we should doubtless see 'the liver' determining the dicta of the sturdy atheist as decisively as it does those of the Methodist, when in another way the atheist form of mind." Since all thoughts have physical conditions, no thought is by that mere fact discredited. Nor is the distinction between healthy and unhealthy physical conditions decisive in the matter. A temperament nervously unbalanced, however inferior from the standpoint of personal comfort and longevity, is compatible with high social usefulness, may even in certain forms of such usefulness be a powerful aid. We must judge the spiritual value of mental states by experience of their results for life. This is something upon which their bodily antecedents shed no light. "When we speak disparagingly of feverish fancies, surely the fever-process as such is not the ground for our disesteem—for aught we know to the contrary, 103° or 104° Fahrenheit might be a much more favorable temperature for truths to germinate and sprout in than the more ordinary blood-heat of 98 or 99 degrees. It is either the disagreeableness itself of the fancies, or their inability to bear the criticisms of the convalescent hour that stamps them as delirium." "By their fruits ye shall know them, not by their roots."

SHAKESPEARE AND BACON AND MEDICINE.

During the last year the advocates of the theory that Bacon wrote Shakespeare's plays have been especially active, and one of the recent contributions to the subject, "The Mystery of William Shakespeare," a summary of evidence by Judge Thomas B. Webb, Regius Professor of Laws and Public Orator in the University of Dublin, in one of its most striking chapters deals with "Shakespeare as a Man of Science." Here all the medical knowledge so often supposed to show that Shakespeare must at one time have studied medicine is explained by references to very similar passages in Francis Bacon's acknowledged work. The famous passage, for instance, in which Mistress Quickly gives an account of Falstaff's death and incidentally displays Shakespeare's detailed knowledge of the sort of death Falstaff was likely to meet, is proved to be suggested at least by certain passages of Bacon's writings that did not appear until after Shakespeare's death. Says Mistress Quickly:

"For after I saw him fumble with the sheets, and play with flowers, and smile upon his fingers' ends, I knew there was but one way; for his nose was as sharp as a pen, and a' babbled of green fields."

A little later in the same passage she adds:

"So a' bade me lay more clothes on his feet: I put my hand into the bed and felt them, and they were as cold as any stone; then I felt to his knees, and they were as cold as any stone, and so upward and upward, and all was as cold as any stone."

In the *Atriola Mortis*, written by Bacon, he gives as the signs of coming death *motus manuum floccos colligendo*, movements of the hands as if gathering bits of wool; *memoria confusa*, confused memory; *nasus acutus*, a sharp nose; *frigus extremitatum*, coldness of the extremities; and then the crying out of the dying man, which, by the way, Mistress Quickly also describes:

"So a' cried out, 'God, God, God!' three or four times. Now I, to comfort him, bid him a' should not think of God; I hoped there was no need to trouble himself with any such thoughts yet."

Edward Dowden, the distinguished Shakespearian scholar, shows that most of these signs of death mentioned by Bacon were commonplaces in the literature of the time. His article on the subject in The New Review (London) for July, 1902, is well deserving of attention. In Holland's *Pliny* it is said that a man may see death in the eyes and nose most certainly, and dying men are wont "to keep a fumbling (the very expression Shakespeare uses) and pleiting of the bedclothes." There was also an edition of Hippocrates in common use in Shakespeare's time, from which many of these expressions could have been gathered and from which as a matter of fact Bacon seems to have obtained them.

There is a peculiar disease known as the "mother," which Shakespeare mentions in *King Lear*. Bacon has also a reference to it. But it has lately been shown that in the very year that Shakespeare wrote *King Lear*, Jordan, a well-known English physician of the time, published a paper with the title, "A Brief Discourse of the Mother;" besides which there is a mention of the disease in the look from which Shakespeare took the names of his evil spirits as he uses them in *King Lear*, and it would be not unlike the usual custom of the poet to take other hints from a book like this for material for his drama.

It was very characteristic of Shakespeare's careful eye on the main chance to introduce into his plays subjects that were of recent popular interest in London. For instance, when *The Merchant of Venice* was written, Queen Elizabeth's physician, one Lopez, a Jew, had not long before been put to death on the accusation of having attempted to take Christian lives. This gave

Shakespeare's play a certain recency of interest that he does not seem to have considered it beneath his dignity as a dramatist to take advantage of for the sake of the returns that it might bring to the box-office of those days. In 2 *King Henry IV* there is a reference in the line, "Not Amurath an Amurath succeeds" to the recent death of the Sultan of Turkey, Amurath.

In Romeo and Juliet Shakespeare refers to an earthquake felt in London some years before. Shakespeare therefore may very likely have obtained his material referring to the mother from Jordan's book.

With regard to the drugs mentioned by Shakespeare, he talks frequently of poppy and mandrake or mandragora as sleeping-drafts. Bacon mentions mandrake and opium as soporiferous drugs. There is, however, very little significance in this coincidence of expression, since in the literature of the time these two drugs are frequently mentioned and usually connected together. Donne has the line, "Poppy she knew, she knew the mandrake's night."

It would seem then that even this last attempt to show that Shakespeare could not have written the dramas usually attributed to him and that they are Bacon's work, must also be considered a failure. Some one said very well not long ago that Shakespeare was much interested in cranks and peculiar people when he lived, and that since his death, by a certain irony of fate, a revenge of time, as it were, cranks and peculiar people have been particularly interested in him.

SOCIETY PROCEEDINGS.

SECOND INTERNATIONAL CONFERENCE FOR THE PREVENTION OF SYPHILIS AND VENEREAL DISEASES.

Held at Brussels, Sept. 1-6, 1902.

(From our Special Continenal Correspondent.)

FIRST DAY—SEPT. 1, 1902.

IN our issue of September 30, 1899 (p. 438) we published a report of the first international conference for the prevention of syphilis and venereal diseases, participated in by the leading experts of the world. Not only, as in 1899, was every civilized country represented this year, but the leading parts in the congress were assigned to those most qualified to give an expression of authoritative opinion.

Objects of the First Congress.—The objects of the first congress were:

1. To determine by general reports of leading specialists the dangers to society of (a) syphilis; (b) gonorrhea; (c) the part which prostitution plays in the propagation of these maladies; (d) other modes of dissemination apart from prostitution.

2. To determine by collective investigation the condition of prostitution, the degree of frequency of venereal diseases, the prophylactic measures taken to diminish these affections, the laws concerning prostitution, state and municipal, preventative or repressive, the police or medical supervision, opportunities for treatment in hospitals, medical instruction regarding venereal diseases, etc.

3. To consider the following six questions: (1) Have those systems of official regulation which have been in force had an appreciable influence in the diminution of venereal diseases? (2) How can the medical supervision of prostitution be made more effective? (3) From a purely medical standpoint would it be of advantage to tolerate houses of prostitution or should these be suppressed? (4) In what manner can police supervision of prostitution be improved? (5) By means of what legal measures might the number of women who seek prostitution as a means of support be diminished? (6) What general measures, apart from those concerning the prostitute, can be taken to effectively combat the spread of syphilis and venereal disease?

The results obtained by the free discussion of these questions showed most convincingly the eminent desirability of the holding of such a congress, the statistical inquiries in particular showing that a most alarming and unfortunate condition was present. Inasmuch, however, as the statistical matters presented at this first session in 1899 showed great lack of uniformity, one of the first suggestions was to prepare a chart of procedure for future statistical inquiries which might bring the results obtained in various countries into greater accord.

The great extension of these pests being admitted as well as a certain degree of success attending their diminution by legislative action, the problems outlined in the six questions previously cited still remain for the most part unsolved. It was the function of the first congress, however, to clear up a number of dependant issues and to point out more clearly a number of important conclusions: (1) That municipal control of prostitution as practised has not been a complete success; (2) That the prostitution of minors is the most dangerous of all forms of prostitution and should be combated by rigorous measures; (3) That medical instruction in venereal diseases should be made more thorough and more practical; (4) That apart from the question of prostitution the public at large should be more widely instructed regarding the dangers of syphilis, both to the individual and to society at large, and (5) That the statistics of venereal diseases should be established on uniform bases for all countries.

With the experience gained by the discussion of these questions during the first congress, the permanent committee submitted for consideration at the second conference three sets of propositions concerning, Public Prophylaxis; Individual Prophylaxis and Statistics:

I. *Public Prophylaxis.*—Inasmuch as it has come to be a function of legislation to protect society at large from the ravages of contagious diseases which by their frequency or by the ease with which they are spread, constitute a public danger, and moreover to afford protection to minors abandoned by their families—

A. What legislative measures should be taken against venereal diseases, especially concerning (1) Prostitution, (a) of minors; (b) control of public peace and morality, (c) procurers and pimps. (2) Apart from Prostitution, (a) for the protection of minors of both sexes; (b) for the organization of gratuitous medical treatment by public hospitals and by mutual aid societies; (c) for control, of wet nurses, of infection by midwives and nurses, of infection by vaccination from arm to arm, of infection through implements in the industrial arts; for protection of servants in employment bureaus, hotels and lodging houses.

B. Should the transmission of venereal disease be made a penal offense?

II. *Personal Prophylaxis.*—If it be the function of the State to enact measures for the protection of society, it is further a paramount duty of the sound individual to avoid all contact with a diseased person and even far more the duty of a diseased person to do everything possible to prevent the infection of others. Therefore, (1) by what means may the youth of the country and the public at large be made more cognizant of the personal and social dangers of syphilis and gonorrhea, and the modes of direct and indirect infection of these maladies; (2) in what manner can gratuitous medical service in clinics, hospitals, etc., further individual prophylaxis?

Opening of the Second Congress.—With this comprehensive and carefully arranged program the deliberations of the conference opened on Monday morning, September 1, in the beautifully appointed hall of the Palais des Académie. The conference was opened by the Honorary President, Baron van der Bruggen, State Minister of Hygiene. After the nomination of the permanent committee of the society and a short address of welcome and responses from representatives of the various delegations M. Jules le Jeune, Secretary of State of Belgium, was reelected as chairman of the conference.

Dr. Dubois Havenith, Secretary of the Conference gave a short address of welcome and read announcements of regrets from Professors Fournier, Finger, and Berénger. Thirty-six different countries were officially represented.

Legal Control of Prostitution.—This was the first question taken up by the members of the conference. As with the first congress so with the present meeting the two camps of followers of those believing in regulation and those not so believing became sharply differentiated. Both parties were united, however, on the declaration that regulation, as now carried out, throughout the world, was defective and gave but uncertain results. At this point Professor Neisser proposed to divide this question of Public Prophylaxis into its moral, legal, and medical aspects and for the sake of arriving at clear-cut conclusions he recommended their separate discussion and further suggested that the conclusions be formulated as resolutions to be voted upon and their adoption would constitute an official statement from the congress to the world at large. This was voted an inexpedient mode of arriving at the best measures.

Dr. M. H. Pierson, Director of Heldring, Holland, maintained that regulation was bad, particularly on moral grounds, in that it offered opportunities for debauchery, with safety, and was thus subversive of chastity and of sexual morality. He allied himself with the abolitionists.

Dr. C. Boeck, Professor in the University of Christiania, spoke of the Norwegian system. By this each village has its committee of moral supervisors, whose duty it is to provide elementary instruction in matters pertaining to sexual morality and venereal diseases. Norwegian physicians are compelled to report all cases of venereal disease coming under their treatment.

Dr. Santoliquido Rocco, Inspector of Public Health in Rome, said that in Rome the system of absolute freedom had proven satisfactory. Free medical treatment was advised and he further recommended the Roman system of public instruction of elementary physiology, bearing particularly on sexual problems.

On Supervision.—Dr. T. Barthélemy, physician to Saint Lazare of Paris, in his report says that nature seems to have but one preoccupation, that of self-perpetuation and of self-perfection. In obedience to this great law of human nature the sexual instinct has its origin; but between the law of nature and the laws of society certain antagonisms have arisen, the most important one of which is the existence of venereal disease which complicates the great law of the sexual instinct in its manifestations. Has not human nature means at hand to controvert and render inoperative the venereal infections? Dr. Barthélemy quotes Fournier as stating that society has at least three methods of accomplishing this conservative function. Moral means, medical research and treatment, and administrative measures. It is impossible to expect, says the author, that the following out of any one line of dealing with this problem, will result in the best good—a combination of the three is essential, and he most energetically combats the idea that any one is of more importance than the other. But the moral aspects of the matter have received and are receiving their share of attention, every medical laboratory in the world is filled with active investigators, and he devotes his attention to the administrative question. He believes that, inasmuch as the present restrictive measures operative in France, as well as in other countries, have almost uniformly proven inefficient, that it is false to argue that "reglementation," or legal restrictive supervision is a failure, but rather that the methods of supervision and restriction be made more logical and strict. In order to bring such reglementation about, it is to one class in particular that it should show no mercy, and that is to the professional prostitute who, knowing that she is in an infectious stage, nevertheless plies her trade regardless of the havoc she is causing. It is this class, a class which comes to be known to a person, by the police, that should be compelled to submit to treatment in closed hospitals. Such should not be released until they have recovered from any infectious stage.

Dr. F. Valentine of New York spoke in favor of segregation of prostitutes and of the prohibition of liquor-selling in such segregated areas.

Transmission by Nursing.—Dr. Petrini of Galatz, Professor in the University of Bucharest, spoke of the prevalence of this mode of infection, saying that its frequency varies widely in different countries. Whereas in England, where mothers more universally nurse their own children, it is rare enough to apparently need no serious consideration; yet in eastern countries, with which he is familiar it is by no means a rare mode of conveying syphilis. He proposes a special medical service having at its head a competent physician and regulated by civil authorities. All children being nursed by wet nurses should be subject to regular medical inspection and all wet nurses should be regularly inspected and passed upon by this medical bureau. Only passed wet nurses with certification from the bureau of inspection should be permitted to be employed.

Dr. Drysdale of London, Dr. G. Démétriatade of Bucharest and Mr. Yoes Guyot of Paris spoke of the difficulties of State control and believed that open measures of education would prove of greater service.

Professor Neisser of Breslau presented an admirable report from which the following conclusions may be drawn: (1) In the efforts which are taken to prevent the spread of venereal disease, the State should not rest contented with adopting measures for the restriction of prostitution, but should also take advantage of the many opportunities which are offered for contending against the spreading of venereal diseases.

(2) The most important and the most efficient means of preventing the diffusion of venereal disease is by familiarizing the public with the dangers and the importance of these maladies. Above all, young men should be instructed that not only is chastity and continence not detrimental, but that these attributes are desirable from the medical point of view.

(3) All measures adopted by the authorities with the object of preventing venereal disease and of contending with the melancholy consequences of prostitution should be sanctioned by law. The principles of these laws should be as follows: The administration of the law should be relegated to the parochial or municipal authorities of each district.

(4) (*A*) The law should guarantee to every one suffering from venereal disease gratuitous hospital treatment, and should in no case demand from parents, from tutors or from fellow citizens of the patient any reimbursement for the expense of hospital treatment. The State should defray the expenses of this gratuitous treatment, except where charitable societies exist for paying the expenses of such illness. (*B*) In every

town, important community or district, hospitals should be erected—ultimately supported by state aid where the gratuitous treatment of venereal disease and dispensing of medicine should be carried out. (*C*) Care must be taken that all arrangements prejudicial to the treatment of venereal disease at hospitals should be abolished. It is better to place these cases under the department of dermatosyphilography in general hospitals than to establish special hospitals; the nature of the disease should not be revealed to other patients, and the feelings of the sufferers should be respected.

5. The following special measures should be adopted: (*A*) A Sanitary Commission should be appointed which should be the central administrative machine which should take all the necessary steps to ensure the treatment of venereal patients and the prophylaxis of those diseases. (*B*) Compulsory medical notification should be introduced in a two-fold form: As regards the Sanitary Commission: (*a*) The composition of this Commission. Like a legal tribunal, it should consist of judges and jurors. These should be selected mainly from those whose studies, and professional and administrative capacity, give them a special insight into the subject of venereal disease and of prostitution: doctors, clergymen and public officials.

(*b*) The programme of this Commission: Statistics should be kept of all the patients who are notified (by name or otherwise). A sanitary supervision should be exercised over all the subjects of venereal disease who are notified by the doctors or the police as being dangerous to the public health.

This supervision should be carried out in the following manner: (1) The gravity of venereal disease and the necessity of continence should be impressed upon the patient, and in the event of the instructions being disregarded, the police should make a legal complaint; (2) The patients should be subjected to medical treatment, and when they are so subjected, they should either consult at their own expense a doctor nominated by the Commission, or should be treated gratuitously at some public institution set on foot for the purpose. At the same time a card should be given to those individuals brought up before the Sanitary Commission, which should make it certain that the patient was submitting himself with regularity to the treatment ordained. (3) The police should be informed of those patients who neglected to follow out the treatment prescribed, in which case a judicial complaint should be lodged against the offender for his neglect. Sanitary supervision should be kept absolutely separate from police supervision, and the "police des mœurs" should be abolished.

The compulsory medical notification should be made under a double form; (1) Without any indication of name, but in a manner sufficiently clear so as to avoid notifying the same patient twice. The doctors should declare to the Commission, under this form, all the cases of venereal disease under their care. They should indicate: *a*. The Christian name, the initial of the name, the month and year of birth; *b*. The exact diagnosis; *c*. The date of infection; *d*. The source of the infection. This declaration is most important, since it will determine the amount of venereal disease existing. Ultimately this compulsory declaration might be replaced by a legal exactment which should compel the doctors to render a statement at certain intervals. The indication of the source of infection would render it possible to discover clandestine prostitutes, and also those men who have sexual intercourse despite their disease. One condition should be attached to this regulation; the patient must be given a guarantee that the person he denounces as having been the source of his infection should not be punished or rendered liable to damages. (2) The doctor shall indicate the name of the patient, when he has reason to think that the latter is continuing to have sexual intercourse, and is not observing the sanitary measures recommended him. The police should also have the right to signify to the Commission those persons suspected of prostitution, but the Commission alone can decide on the measures to be taken in respect of such persons.

A law should be passed forbidding anyone not in possession of a medical qualification from treating cases of venereal disease, under a severe penalty. Those persons, knowing themselves to be suffering from venereal disease and who continue to have sexual intercourse commit an offence even if contagion does not result.

It is necessary to give every medical man in his educational career adequate instruction in venereal diseases, and possibly a new diploma might be instituted for those who wish to specialize in the subject.

Prostitution in itself should not be considered as a misdemeanor; it should only be punished where the State or society are injured through the misconduct of the prostitute.

The State has the right to deal with existing prostitution by measures specially directed against the dangers caused thereby; further, it has a duty to perform in preventing the spread of prostitution by reforms adopted for the protection of the community.

When anyone (man or woman) is repeatedly warned of the necessity of obeying the regulations indispensable from the sanitary point of view, if such person constantly disregards such warnings, or if a professional prostitute continually neglects to conform to regulations, if she causes a scandal in the street or if she provokes a disturbance, they should, on the complaint of the police, be condemned to detention of long duration, and in the event of the continuance of their misconduct should be placed under the supervision of the police. The system of short detention should be abandoned.

Prostitutes of incorrigibly bad character, who continue to practise their avocation in spite of their incurable condition, should be confined either permanently or for a definite period in asylums or houses of correction. Those placed under the supervision of the police should be subservient to the instructions of that body as regards their domicile and the practice of their profession.

The sanitary supervision of these women should be entrusted to the Sanitary Commission; (*a*) the practice of prostitution should be prohibited in houses where children are living, or where any other lodger raises an objection, and the landlords are responsible for the enforcement of this regulation; (*b*) in order to render the practice of prostitution possible, while at the same time depriving it as far as possible of its publicity, certain houses of resort should be sanctioned; (*c*) the supervision of the streets, a matter which is left to the police, should aim at restricting the public practice of prostitution.

Minors who are prostitutes, or are suspected of prostitution, or who are the subjects of disease should not be left to their own devices; they should be admonished but not punished; some law analogous to the Prussian law of July 2, 1900, should be adopted to ensure their compulsory education (girls so diseased should be submitted at the same time to treatment and to education, which treatment could be renewed either in hospital or outside).

Compulsory education of children who run the risk of moral degradation should be enforced (see Prussian law, July 2, 1900).

Besides these measures, other steps should be taken for the prevention of prostitution: (1) Those minors who are placed under restriction, should be detained in

special educational establishments, and not in prisons or houses of correction; (2) the evils resulting from the overcrowding of rooms where children sleep should be mitigated; (3) children from 14 to 18 years of age should be subjected to the same educational course as adults.

But if for some reason compulsory education cannot be enforced, or if a young prostitute defies all efforts for the amelioration of her position, she should be treated in the same way as the older prostitute. There is no necessity for any difference in her treatment, considering that she is pursuing a course dangerous to the public safety and welfare; *for young prostitutes are the most dangerous from the sanitary point of view.*

SECOND DAY—SEPT. 2, 1902.

The discussions throughout this session were devoted to the subject of public prophylaxis. Little new was added to the general store of cut and dried opinions, but the subjects under discussion began to assume a more definite character and a great increase in interest and enthusiasm became manifest.

Dr. L. Pileur and Mr. Sheldon Amos of London spoke of the necessity for the protection of minors with reference to their being forced into prostitution. Dr. Pileur proposed the detention of minor degenerates until they became of age.

Dr. F. Verchère, surgeon to Saint Lazare, Paris, protested against the free sidewalk. From the medical side, many of these street walkers are too ignorant to know that they are diseased and rarely seek medical treatment. He spoke of the frightful conditions found in the streets of London and that such a state of affairs was most illuminating in the discussion of the question of abolition of all measures of restraint. He advocated all possible modes of education, but was pessimistic regarding the probability of moral reform in the young prostitute. As for the treatment he would establish two divisions in hospital work. One for the treatment of those prostitutes who voluntarily sought the physician. These should be permitted perfect liberty to come and go. Another class that resisted treatment should be compelled to undergo a thorough course for their disease and be kept under lock and key until their malady was non-communicable.

Dr. Blaschko spoke again of the dangers of autocratism if prostitution were to be regulated by the ordinary police. Reglementation as carried out has more failures than successes. Free dispensaries he believes would be crowded and would contribute more widely to the diminution of the disease than would supervision.

Prof. O. Lassar of Berlin said that the poor girl abandoned by her lover and driven from home by her parents, and often ill, is a most worthy subject for pity. She is an outcast from society, whereas the man, who has caused the trouble, maintains his place in society. *He* should be sought out and punished. Dr. Lassar spoke of two classes of prostitutes, one who pursues her calling as an extreme measure of gaining her living; the other are natural prostitutes, born for the life and its vicissitudes. Society should elevate the former class and by providing suitable labor permit them to become bread-winners in a higher sense. The other class should be tolerated and afforded an opportunity to meet clients under the roof of one who could be held responsible for everything that occurred in her house.

Dr. P. Gastou, Chief of the St. Louis Hospital Laboratory of Paris, said that the most important point is to attack the prostitution of minors, in all its branches; especially the so-called "free lances," which class constitutes the most dangerous one to society. The surveillance of these minors, however, should not involve any infringement upon personal liberty. Syphilis, being more dangerous than tuberculosis, should be treated on much the same principles but with differing details. He highly recommended the principles of universal and thorough education in matters pertaining to sexual relations and their dangers.

Mme. Bieber Böhm, President of the "Society of the Protection of Youth" of Berlin, enunciated the general principles of protection and education of minors by improved social laws and methods of providing better moral, physical, and psychical surroundings. She advocated greater stringency in the seduction laws, and wider sympathy with the seduced, looking towards their regaining their place in society.

Following an elaboration of some general arguments by Drs. Merk and Minod, Dr. Landouzy, Professor of the Faculty of Medicine of Paris, said that there was no question that the present condition of affairs was bad. He maintained that the State was to be held responsible for the protection of its citizens, but that the systems as now elaborated, and particularly in France were very unsatisfactory and insufficient. They took recognition only of the registered prostitute and only a portion even of these. Apart from general questions of morality the State should recognize only the fact of contamination and of prophylaxis and should treat the venereal diseases as other forms of contagious diseases and protect the citizens along the lines mostly approved for protection against tuberculosis, typhoid, etc.

He further advocated the formulation of civil laws which should make the giving of venereal disease a civil offense with the right to obtain monetary damages. The question to be considered is one of poisoning. New laws are not needed, but the old laws concerning poisoning so modified and amplified to fit the case of bacterial infections.

Regulation a Failure.—Dr. Santoliquido reiterated his opinion that general educational measures should supplant police regulation and that if there was to be a supervision it should be by the medical body rather than by the police.

Dr. Rethan Macaré, General Counsellor to the Supreme Court of Holland, also spoke of the inefficiency of the present modes of supervision actually in vogue in Holland, particularly those relative to the protection and care of pregnant women. He believed that men who were actively syphilitic should be reported if they persisted in marrying.

M. Beco, Vice-President of the Congress, said that while it was perfectly true that for Brussels, the home of reglementation, this system has proven inefficient, it was nevertheless inadvisable for the abolitionists to seek to entirely destroy the system. The fault lay more in the imperfections of the details which new laws could modify and probably to advantage. Every illness, he said, has its own prophylaxis and if syphilis cannot be suppressed as is smallpox, there is no use in saying that an efficient system of prophylaxis may not be found. Time alone will develop a practical system and the objects of the Congress will have been attained only when the results of various efforts may be honestly and logically compared. He proposed the following resolution: That the conference admits the deficiencies of all existing systems of official control and that venereal disease being as harmful as other infectious maladies that they be controlled with the same seriousness although by different means. Sanitary control should be a thing apart from police supervision and should be in the hands of regularly appointed physicians.

Russian Laws.—Dr. de Sturmer, Counsellor of

State, said that notwithstanding the fact that the laws of Russia were over 50 years old, they were still quite applicable to the question under discussion. In Russia the most stringent measures are directed against procurers of all kinds. Minors are forbidden to enter houses of tolerance and it is a crime to have sexual congress with a female minor. Reglementation has been abandoned in St. Petersburg and the public women are allowed to come and go as they wish. One of the results has been that the dispensaries for the treatment of venereal diseases have been empty; the women are often treated once and then do not return. Syphilis is very largely on the increase and something must be done. The professional prostitute, he said, was for the most part morally insane, inasmuch as they lack all moral sense. Russian physicians, for the most part believe that the police service and the sanitary service should be wholly distinct, the one from the other.

Dr. Peroni, Professor of Dermatology, Turin University, said that Italian laws have recently been enacted which have given to the physician more power in the city hospitals. This had permitted better treatment of the sick and particularly has it benefited those affected by venereal diseases. Professional secrecy is something to be zealously guarded.

Dr. de Watroszewski, Inspector of Saint Lazare Hospital, Warsaw, said that prostitution is an evil, and that reglementation is another, two evils are then to be contended with instead of one.

M. Rehaan Macaré proposed the passing of a law which will prevent the marriage of a syphilitic. This is to be so regulated that the physician of the sick party should report to a central medical and judiciary committee which would have the power to prohibit such marriage. This committee should be composed of eminent and non-corruptible authorities.

Dr. Queyrat of the St. Lazare of Paris says that there are practical difficulties in the way of absolute reglementation, citing figures which show that the system to be complete would require a greater elaboration than physical restrictions could admit. He advocates a general crusade all along the moral lines.

Surgeon-Major MacCulloch, Director of Army Medical Service, said that the percentage of recruits rejected for venereal diseases is not as great as reported. He believed that syphilis had positively increased since the abrogation of the Contagious Disease Acts. This was so marked a condition in Burmah as to call for official inquiry.

Dr. Galewsky of Dresden spoke of certain new regulations of the Government of Saxony with reference to the control of prostitution. These were in accord with the recommendations of the Congress of 1889. Early gratuitous treatment of all venereal infections was the most salient feature of the recommendations and was fostered by the distribution of a pamphlet, bearing on the question, by the Saxon Government.

Dr. Jullien of Paris said that the first congress recommended that definite action be taken against procurers and procuresses. It was a matter of great regret, that for France at least no action had been taken against this detestable class of society. This class now openly plies its trade in the streets of Paris and it constitutes a great menace to the citizens of that city and of France, since Paris is the school that trains these lower classes for the entire state if not for a great part of the world.

M. Le Jeune, Minister of State of Belgium, stated that in Belgium the procurer, cadet, is treated as a special class of criminal. He is not given the privilege of the ordinary criminal. His case is taken out of the category of ordinary penal law and he is condemned after proof, to seven years' sequestration. This is an absolute sentence not susceptible of any mitigation whatever by reason of good conduct in prison. Brutal severity alone is considered his due because of the peculiarly hideous character of his crime.

Madame Schwen of Dresden maintains that the maisons de tolerance were unnecessary and had a bad moral influence, debauching society and even spreading syphilis. She champions medium course between the reglementarist and the abolitionist and believes that educational factors should be most vigorously pushed.

THIRD DAY—SEPT. 3, 1902.

With the opening of the session the subject of public prophylaxis was continued.

Equality of Sexes.—Dr. Hartung of Breslau spoke of the supposed inequalities in the treatment of men and of women. In Germany, he said, this is not as great as has been supposed since in many municipalities the physicians have the power of seeking out and compelling men to undergo treatment. The law also provides that cases of venereal diseases be reported. But it is more honored in the breach than in the observance.

Professor Lesser of Berlin said that in all the suggestions that may be put into practice one thing should not be forgotten: This is the maintenance of professional secrecy. Upon its inviolate observance the physician's status, towards the patient, and in society is made what it is. If that relation should in any way be violated the treatment of venereal diseases would become an impossibility because all confidence would have been destroyed.

An American Attitude.—Dr. Valery Havard of the United States Army, speaking for himself said that he was in favor of any system that had for its object the restraining of prostitution and the diminution of venereal maladies. If sanitary regulation accomplishes this result, well and good. He believes it to be a justifiable method. He believes that a state can legalize an evil if in so doing a greater evil is to be suppressed. A state can further permit *maisons de tolerance* and prevent their unsavory addenda, debauchery, etc. To say that by permitting houses of prostitution to be open the state favors and encourages prostitution is neither just nor logically defensible. It is said that regulation is not of service. What then do the majority of statistics seem to signify? Thus in the countries in which reglementation is in force as in Germany and in France, one finds in the army, for instance, 20-35 per 1,000 of cases of venereal diseases; whereas where prostitution is uncontrolled as in England and the United States it is admitted that there are 120 to 155 to the 1,000 of venereal cases. This is an important point on which much light might be shed to advantage. But in admitting that regulation can and does diminish most sensibly the incidence of venereal disease, is it necessary to apply it throughout? It is known that there are many laws most excellent in their ideals which in practice fail to serve or even work disadvantageously. In many regards such is the condition with reglementation. It is excellent in principle when one would apply it integrally, but it is bad to apply in a state in which the spirit of the people will not permit its entire application. All being said it should be proclaimed in a most decisive manner that it is granted that moral prophylaxis is a still better ideal end, in that it takes cognizance of all factors and should be *the* basis of all reforms of bad social conditions. The conscience of the youth should be a most important factor in prophylaxis. On final analysis the great factor of education is an end to be sought by all and the Church and the State should work side by side for mutual good.

Local Needs to be Consulted.—Dr. Demetriatade of the University of Bucharest was of the opinion that legal control of prostitution is indispensable, but all laws looking to this end should be framed in accordance with a thorough appreciation of local conditions.

Dr. Berthod of Paris proposed that all insurance societies refuse to accept risks for patients afflicted with venereal disease. This measure would have, he thought, an important secondary value, especially when marriage was contemplated in enabling parents to prevent marriage of daughters to syphilitic men.

Dr. Blaschko of Berlin said that the number of members of the Kranken Kassen (Mutual Aid Societies) is constantly on the increase, and especially among the working people, one can look forward to the time when all will be insured in these associations. Thus an influence will be at the disposition of the physician which may give brilliant results. Obligatory insurance against illness as it exists to-day in Germany is one of the most influential factors in diminishing the spread of veneral diseases and of medical pauperization.

Dr. de Morsier read a paper of Dr. de Méron, who proposed three grades of protection for minors according to their age and physical development. The first grade of legal measures should guard them from infancy to puberty; a second grade would guard those who had entered the period of puberty and a third grade would guard minors until their majority. The laws diminishing in vigor and severity as the age increased.

Dr. Kohn of Berlin endorsed Dr. Blaschko's views and further spoke of the benefits derived from distribution of educational pamphlets among the members of the Kranken Kassen. Those bearing, thus far, on tuberculosis and on typhoid fever had had a marked effect in prophylaxis against these diseases. Whenever a municipality helps the Kranken Kassen it assists directly the maintenance of the health of its people.

A short discussion here followed, apropos of the dangers pro and con of arm-to-arm vaccination. Drs. Havard, Landouzy, Cicero, Castelo, Bece, and others participating.

Wet Nurses—Dr. Galewsky of Dresden spoke of the desirability of greater attention being given to the reception of infants into hospitals. Here it is possible to examine the mothers for venereal disease and since the major portion of these mothers seek positions as wet nurses, the protection of mother, child and society may be effected.

Dr. Bertarelli proposed that no wet nurse be employed without a physician's certificate that she is sound and also spoke of the other contingent concerning the choice of a wet nurse for a syphilitic child.

Sailors as Infecting Agents.—Dr. Reimers of Hamburg said that syphilitic babies born in Hamburg hospitals were kept under medical control for a year. He spoke of the great frequency of syphilis among sailors. Particularly was this true of sailors on sailing vessels. The German Government has promulgated measures requiring that all sailors shall be subject to a physical examination in order to determine their fitness for their calling. All sailors found to be infected with venereal diseases are obliged to undergo treatment.

Industrial Infections.—Dr. Landouzy said that legal recognition should be taken of all cases of syphilis acquired by workers in industrial manufacture. Responsibility should be lodged in the proprietors of such manufactures. Such a law would tend to clean all factories of venereal disease. He urged that "industrial syphilis" be legally recognized.

In the afternoon session a full, free and at times spirited discussion took place regarding the framing of certain recommendations which should go forth as official pronouncements of the Congress. These recommendations will be found at the conclusion of this report.

FOURTH DAY—THURSDAY, SEPT. 4, 1902.

Legal Responsibility of Transmitting Venereal Disease.—This was made the subject of the morning's discussion. The theme is by no means a new one, yet it is advanced as a sovereign remedy by many. The sense of the Congress was most decidedly against its advocacy. Many of the speakers were jurists of continental reputation and their remarks were listened to with evident appreciation.

M. Bonnevie of Brussels said that syphilis insontium and syphilis should be recognized legally as two different things; the one acquired by an innocent party through the fault of another; the other a matter of voluntary exposure. The law would not and could not recognize an immoral contract as between client and prostitute, save in the case of violence or theft. The law should be requisitioned against an individual not because he has wronged (infected another), but because he has wronged society as a whole, as represented by the tort suffered by one of its members. When such cases are taken into civil courts all sorts of technical difficulties, questions for experts, etc., arise and as a result the small hope of obtaining damages on the one hand and the danger of blackmail on the other make the question very difficult except in the most flagrant instances. Prostitution is not recognized by law. It cannot be, and those who seek their living in it must know the dangers to which they are exposed. Prostitution is a condition. Misery and crime are responsible for its presence. Remove these and then attack the evil.

Divorce not a Remedy.—Professor Fournier has claimed that ⅓ of all syphilitic women have been infected by their husbands. This is a terrible fact, but how can it be remedied? Divorce? Yes, but how will this right the wrong? It will not remove syphilis from the wife, and further, how can the charge be proved against the husband? There must be a greater chance for the poor wife before the courts. She must be given a better opportunity to fight for her share of happiness in life. The man with syphilis who insists on marrying because of pecuniary or social advantages to be derived should be considered by the physician as outside the moral plane of society and within the criminal class. He should be treated as such and imprisoned (the cause not to be revealed) by complaint of the physician whose duty it is to prevent a crime to society. The dangers of venereal disease should be taken into consideration in all contracts for marriage, much as other defaulting factors are provided for in business agreements.

Jurists Bell and Le Foyer of Paris said that the causing of an infection in another should be considered in law as a tort. This should be established in the legal codes. The injury and loss that such an infection causes its victim should be legally recognized. Then and not before can a satisfactory basis be established for proceeding against cases of venereal infection.

Professor Jadassohn of the University of Berne said that within recent years a new law had been passed by the Swiss Parliament at Berne. This practically makes it a misdemeanor for a prostitute to continue in her calling after a physician has notified her that she has a contagious disease.

Professor Tomasoli of Palermo said that the taking away legal restraint of prostitution as advocated by the abolitionists would be a stop in a reverse direction.

The prostitute must be legally controlled because of the close relation that prostitution bears to crime and to criminals. The state control of prostitution is a legal necessity as a protection to the community.

Individual Prophylaxis.—This, the third topic of discussion, was taken up on the afternoon of the fourth day. The remarks became general and we present only the more striking suggestions.

Dr. Good spoke of the various means by which a knowledge of venereal diseases and sexual hygiene may be diffused. Talks and lectures are unsatisfactory save in hospitals, garrisons, etc., where the discipline will not interfere with the presentation. Placards and signs are of limited use. This is largely due to the fact of the fundamental differences in the modes of instructing the two sexes. Pamphlets and books, carefully written and wisely distributed, form the safest and surest means of popular instruction. They are least often misunderstood.

Dr. Queyrat said that the clergy could do an important work if they would attempt to teach that sexual matters are not things to be hidden and to be ashamed of. By their efforts they could bring about a healthy tone of morals.

M. M. de Morsier gave some practical suggestions regarding the teaching of the phenomenon of reproduction. If the nature of sex were shown from its biological sides, in plants, in lower animals, and the various gradations of sexual development up to man were taught much that is now shrouded in mystical curiosity would become the common knowledge of the youth without sexual tinge. The soldiers and the sailors should be instructed by special means. Lectures and pamphlets make the best means of reaching this class. He thinks that placards are not advisable.

Gratuitous Treatment.—Dr. Santoliquido emphasized the value of gratuitous treatment as a means of individual prophylaxis. In the Italian dispensaries the name of the patient is not asked; consultation is strictly private and the free medicine which is given has no label by which the contents may be known. Instruction in venereal diseases and sexual hygiene is given in all the high schools and universities. The Italian Government spends $200,000 a year for this instruction in the interest of the public health. The good health of a people is a nation's most valuable asset.

Dr. Jadassohn read a paper of Dr. Finger's which dealt with the compulsory instruction of the patient by his physician. The report of the diseased of each sex for statistical purposes is recommended.

The general consensus of opinion was in hearty accord with all measures of practical educational value, intellectual and moral.

FIFTH DAY—FRIDAY, SEPT. 5, 1902.

Individual Prophylaxis.—Professor Neisser said that it cannot be too often repeated that syphilis and gonorrhea constitute grave menaces to society. Those who can afford to pay for medical advice should be compelled to undergo treatment at their own expense. When, however, the individual is unable to pay, society should come to his aid and with regard to its own safety treat him gratuitously since an infected one constitutes a harmful agent.

Dr. Watrowszewski spoke of the desirability of having adequate hospital facilities in which to treat all patients suffering from venereal disease.

Statistics.—The subject of a study of the bases on which statistics should be based was the final subject for discussion. Uniformity and regularity are the features most desirable in order to afford just criteria for comparison. The subject is one of details and on motion of Professor Neisser, after much stray discussion, the matter was referred to a special committee.

Recommendations of the Congress.—A number of final resolutions were unanimously adopted by the Congress as definite steps of advance. These were as follows:

1. Resolution of Dr. Troisfontaine.—That all recruits arriving at the regiment should be given a pamphlet advising them of the dangers of gonorrhea and syphilis. To which should be added a paragraph showing the possibilities of life-long disability arising from venereal diseases. The risks of not applying for treatment at the earliest possible moment are added. Alcoholism and tuberculosis are also to be touched on. Finally, the soldier on leaving his regiment should preserve this pamphlet with his discharge papers.

2. Propositions of Professors Neisser, Gaucher and Jadassohn.—The law should guarantee to each venereal patient gratuitous treatment in the largest sense possible. All conditions or practices in hospitals and dispensaries discriminating against venereal patients should be abolished. In all public hospitals such treatment should be given with medical secrecy and the modesty of the patients should be respected.

3. Resolution of M. Minod.—The most important and most efficacious means for combating the spread of venereal affections consists in the greatest possible spread of information relative to the importance and dangers of these maladies. It should be taught that chastity and continence are not only compatible with perfect health but highly desirable.

4. Proposition of Professor Santoliquido.—Inasmuch as statistics are valuable only for purposes of comparison it is desirable: (1) To establish all statistical enquiries on uniform bases; (2) it is necessary to give over such statistical inquiries to an international bureau; (3) the president of this international bureau should transmit to various governments the general propositions and obtain their criticisms and suggestions.

5. Proposition of Dr. Frank.—The conference recommends that the problem of rational and progressive education in sexual matters from a hygienic as well as a moral point of view be presented to all institutions devoted to the education of the youth. Further, that a commission be appointed to study the editing of treatises, which, inspired by existing brochures, shall serve as means of such instruction for the world in general.

BOOK REVIEWS.

A TEXT-BOOK OF PRACTICAL THERAPEUTICS, WITH ESPECIAL REFERENCE TO THE APPLICATION OF REMEDIAL MEASURES TO DISEASE AND THEIR EMPLOYMENT UPON A RATIONAL BASIS. By HOBART AMORY HARE, M.D., B.Sc. Ninth Edition. Philadelphia and New York: Lea Brothers & Co. 1902.

THE first edition of this book was welcomed as a concise but comprehensive treatise which with a small amount of reading would direct one how to handle a case of illness, what to prescribe, and how to put into operation the remedial measures indicated. It was the author's desire to render the work of the scientific investigator available for the bedside clinician, and his book at once met with the favor of the profession. In successive editions the changes have been many in the text without alteration of plan. The present volume differs from all predecessors especially in its wealth of illustrations which show the actual performance of cupping, lavage, inhalations and other procedures so that they can be easily put into practice.

The author still clings to his condemnation of agaricin for night-sweats, though many clinicians value it highly. He wrongly states the dose to be 1 to 2 gr., whereas, to combat night-sweats, the dose should be 1/10 gr. and should not exceed 1/5 gr. Under chloretone no reference is made to the many recently published untoward effects of the drug. In the section on diseases the course and various stages are considered in the treatment, necessarily in a brief and dogmatic manner. Any stomach specialist would condemn the teaching that "lavage is almost always to be resorted to for the relief of chronic gastric catarrh." Yet, remembering the extensive scope of the book and its limitation to a medium-sized volume, it seems a marvel of condensation, unexcelled for quick reference and prompt use where lack of time forbids resort to the larger works.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Articles on Medicine, Surgery, Therapeutics, etc., by Leading Members of the Medical Profession Throughout the World. Volume II, Twelfth Series, 1902. J. B. Lippincott Company, Philadelphia.

The present number of the International Clinics contains especially good articles by Prof. Finger of Vienna on The Treatment of Acute Urethritis; by Dr. Wm. B. Coley, on the Radical Cure of Inguinal and Femoral Hernia; by John C. Hemmeter of Baltimore, on Gastrointestinal Intoxication; and by Prof. Thomas Jannesco of Bucharest, Roumania, on Resection of the Cervical Sympathetic; besides a clinical lesson that includes the description of a series of cases revealing most of the ordinary operative gynecological conditions. Dr. Howard A. Kelly of Baltimore has some notes upon The Management of a Modern Private Hospital that will prove eminently suggestive.

The department of Biographical Sketches of Eminent Living Physicians, which promised to add distinction to the Clinics, has somewhat degenerated from its pristine purpose. In this number the article is mainly taken up with the method by which a very distinguished Chicago surgeon collects his bills, even for the examination of patients, in advance, and thus saves all the bother of bookkeeping.

The special article on the function of the digestive glands according to the researches of Prof. Pavlov and his pupils is not of special clinical import, but it is an extremely interesting review of the most interesting work that has been done in physiology in recent years. Prof. Pavlov's researches more than those of any other, serve to show that the tradition of significant progress in physiology in every decade is being kept up in ours.

MOTHER AND CHILD. By EDWARD P. DAVIS, A.M., M.D., Professor of Obstetrics in the Jefferson Medical College; Professor of Obstetrics and Diseases of Infancy in the Philadelphia Polyclinic, etc. J. B. Lippincott Company, Philadelphia.

The author states that this book is not intended to take the place of the family physician, but is to help him by placing at the disposal of his patients such information as physicians commonly give to their patients. But such a book placed in a mother's hands becomes to her like a Bible, an ultimate and infallible authority, and her references to its dogmatic statements make the way of the family physician anything but easy. The sentiment expressed in the latter portion—"It is unjustifiable to expose a child deliberately to any contagious or infectious malady, and, on the other hand, *it is unwise to attempt to escape these diseases*"—is harmful in the extreme, and belongs to the intelligence of the "meddlesome midwife" rather than to that of a professor of the healing art. The common contagious diseases are not by any means harmless, and the best way to avoid their baneful effects is to keep away from chance of infection. The statement that "a foreign body in the eye will nearly always be removed by the movements of the eyeball" ignores the fact that before its voluntary exit the foreign body may do considerable harm. The author recommends nursing a young infant every two and a half to three hours, a longer interval than commonly advised. In the book there are many ideas that might make it useful for young physicians, for example, talks on clothing, baths, the nursery, going out, various therapeutic measures, and the handling of the ordinary accidents of childhood from nosebleed to broken leg, yet such things are better told in more scientific works. We believe that this book will not be used by doctors and cannot safely be given to a mother, but we think that nurses may find in it much teaching that they will appreciate.

THE DIAGNOSIS OF SURGICAL DISEASES. By Dr. E. Albert, late Director and Professor of the first Surgical Clinic at the University of Vienna. Authorized translation from the eighth enlarged and revised edition. By Robert T. Frank, A.M., M.D. With 53 illustrations. New York: D. Appleton and Company, 1902.

IN making this German classic accessible to the American reader, both translator and publishers are conferring a benefit on the English-speaking profession. While numerous works on medical diagnosis, both of native and foreign origin, have appeared of recent years, surgery has been less considered from this point of view. The present volume meets exactly the conditions required by the practitioner by presenting its material in such guise as to be eminently practical and at the same time attractive in treatment. It is, in fact, a series of clinical lectures illustrated by a large amount of actual material and illuminated by all the wealth of experience and reminiscence of a veteran teacher. Unlike the class-room course, however, it is free from disjointedness, and the diagnostic problems presented by every region of the body are systematized in orderly sequence. All scholastic classification has been discarded, and each section of the body is treated as the seat of conditions more or less similar in nature and symptoms, but requiring differentiation of diagnosis. The difficulties and mistakes likely to arise are pointed out by the citation of cases usually sufficiently dramatic in nature to impress themselves on the mind, and frequently carried to their logical termination in the operating or autopsy room. The translator has most satisfactorily accomplished what must have been a difficult though agreeable task. His sentences read smoothly and are free from the syntactical monstrosities that seem to be the usual penalty of over-familiarity with the German tongue. Indeed, the only slip we have found is on page 327, where the word "Spiegel" is given its common meaning, "mirror," instead of the technical one, "speculum," which evidently was intended.

KLINISCHE UND EXPERIMENTELLE STUDIEN ÜBER DIE INNERVATION DER BLASE, DES MASTDARMS UND DES GENITAL APPARATES. Sanderabdruck aus der Deutschen Zeitschrift für Nervenheilkunde. Dr. R. L. Müller, I. Assistent Med. Klinik, Erlangen. Leipzig. F. C. W. Vogel, 1901.

THIS reprint contains interesting clinical studies of the nervous reflexes in the bladders and rectums of patients suffering from paralysis, and makes it clear that true paralysis of these organs does not persist, but that a spontaneous emptying of the receptacles, espe-

cially the bladder, occurs after slight warning, though sufficient to enable the patient to take proper precautions. If cystitis is prevented, then in the early stages of the affection the outlook for the patient is not so full of inconvenience as might at first appear to be the case. The clinical conclusions are confirmed by what takes place in dogs when the so-called micturition center in the spinal cord is destroyed. The work and its conclusions deserve the careful attention of physiologists and neurologists.

THE ROLLER BANDAGE. By William B. Hopkins, M.D., Surgeon to the Pennsylvania Hospital, etc. With illustrations. Fifth edition, revised. Philadelphia: J. B. Lippincott Company, 1902.

THIS little manual fulfils adequately its purpose and is the best possible theoretical introduction to the application of the simple roller. Terse descriptions of each bandage are accompanied by excellent photographic plates illustrating the various steps in the application of the dressing and showing the manner of overcoming the difficulties likely to be encountered. While it is true that the more bandages a man has applied the less likely he is to follow the formal models, still the ability to improvise efficient modifications can be attained only by a thorough preliminary understanding of the classic forms, and for the student no better guide than the present can be recommended.

THE SURGERY OF THE RECTUM. By Charles B. Kelsey, A.M., M.D., late Professor of Pelvic and Abdominal Surgery at the New York Postgraduate School and Professor of Rectal Surgery at the University of Vermont. Sixth Edition. Illustrated by 215 engravings. New York: Wm. Wood & Co. 1902.

ALREADY in its sixth edition, this volume fully deserves the high place it has been universally given in the literature of its subject. The author realizes the ideal of the true specialist, and brings to the consideration of the topics in question an experience ripened by much activity in general medicine and surgery. Accordingly we find full descriptions of the connections between affections of other organs, more particularly the female pelvic viscera, and the maladies of the rectum and its surroundings. A separate section is devoted to "Affections of the Genito-urinary Organs involving the Rectum." This comprises most of the commoner gynecological operations, but the author justifies their introduction by the observation that nothing is described which the practitioner may not be called upon to do to cure his rectal cases. The text is everywhere exhaustive without being discursive, and the methods of treatment advocated are described with sufficient minuteness to make their application feasible for the general practitioner. But the same unstinted praise cannot in every case be given to the illustrations, which in many instances are far below the standards of modern book-making.

Detailed discussion is hardly necessary in the case of so well-known a work as the present, but it is of interest to note that the author solves the mooted problem of hemorrhoid operations by giving the preference to the clamp and cautery, placing the ligature and excision second and relegating Whitehead's operation to a limbo of unsuitability and danger for all except the most skilful and experienced. The injection treatment sometimes gives good results, but involves so many risks and chances of failure that it is to be reserved for only exceptional cases.

A MANUAL OF INSTRUCTION IN THE PRINCIPLES OF PROMPT AID TO THE INJURED, Including a Chapter on Hygiene and the Drill Regulations for the Hospital Corps, U. S. A. Designed for military and civil use. By Alvah H. Doty, M.D., Health Officer of the Port of New York, late major and surgeon, Ninth Regiment N. G. S., N. Y., etc. Fourth Edition. Revised and Enlarged. New York: D. Appleton and Company. 1902.

THE author of the present volume has succeeded admirably in providing the information necessary for the first care of the sick or injured, without encouraging the layman to usurp the functions of physician or surgeon. While it is very evident that the book was primarily designed for the use of the stewards and orderlies in the military service, still it is none the less valuable for civilian use, and a glance at some of the illustrations and descriptions of the U. S. A. hospital corps drill regulations incorporated in the latter portion of the work cannot but discover many useful hints on the transportation of the sick or wounded under any circumstances. The first 67 pages are devoted to an entertainingly written résumé of the most important facts of anatomy and physiology; then follow sections on such general topics as dressings, hemorrhage, fractures, unconsciousness, poisons, hygiene, disinfecting, etc., all fairly comprehensive and well adapted to the understanding of the man in the street. The dissemination of such knowledge as this book contains would not only often contribute much to the comfort of those unfortunate enough to meet with casualties when medical aid is not immediately at hand, but would also greatly lessen the difficulties of the physician when he finally reaches the ground.

The size of the book is such as to make it slip readily into the pocket; the paper and print are good, and the illustrations clear and to the point, so that both author and publishers are to be congratulated on the appearance of this fourth edition of a most excellent work.

BOOKS RECEIVED.

The MEDICAL NEWS *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* MEDICAL NEWS *will shortly appear.*

DIE RÖNTGENSTRAHLEN IM DIENSTE DER CHIRURGIE. By Dr. Carl Beck. 8vo, text 138 pages; atlas 65 figures. Seitz & Schauer, München.

THE PRACTICAL MEDICINE SERIES: PHYSIOLOGY, PATHOLOGY AND BACTERIOLOGY. 12mo, 212 pages. The Year Book Publishers, Chicago.

DISEASES OF THE ANUS, RECTUM AND PELVIC COLON. By James P. Tuttle, A.M., M.D. 8vo, 961 pages. D. Appleton and Company, New York.

MASSAGE AND THE SWEDISH MOVEMENTS (FIFTH EDITION). By Kurre W. Ostrom. 12mo, 181 pages. P. Blakiston's Son & Co., Philadelphia.

PATHOLOGIE UND THERAPIE DER HERZNEUROSEN UND DER FUNCTIONELLEN KREISLAUFSTÖRUNGEN. By Dr. August Hoffmann. 8vo, 367 pages. J. F. Bergmann, Wiesbaden.

THE MEDICAL STUDENT'S MANUAL OF CHEMISTRY (FIFTH EDITION). By R. A. Witthaus, A.M., M.D. 8vo, 678 pages. William Wood and Company, New York.

THE THEORY AND PRACTICE OF INFANT FEEDING, WITH NOTES ON DEVELOPMENT. By Henry Dwight Chapin, A.M., M.D. 8vo, 326 pages. William Wood and Company, New York.